Agricultural Outlook Forum 2000

Speech Booklet 1

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10:30 PANEL ON THE FUTURE OF BIO-ENGINEERED FARM PRODUCTS
How Grain Shipping and Processing Firms Are Handling Bioengineered Products
Dan Dye, Vice President, North American Grain Group, Cargill, Incorporated

1:00 FOOD PRICE BRIEFING
The Outlook for Food Prices in 2000
Annette L. Clauson, Agricultural Economist, Economic Research Service, USDA

2:15 FARM INCOME AND FINANCE OUTLOOK
Farm Financial Prospects: What's Ahead for Farm Businesses by Type and Region of the Country
Mitchell Morehart, James Johnson, James Ryan, and David Peacock, Agricultural Economists, Economic Research Service, U. S. Department of Agriculture

Rural Credit Markets of the Future: Obstacles and Opportunities
Alan Dean Barkema, Vice President and Economist, and Mark Drabenstott, Vice President and Director, Center for the Study of Rural America, Federal Reserve Bank of Kansas City

2:15 RURAL AMERICA IN THE NEW MILLENNIUM
War and Peace in the Rural West
Priscilla Salant, Adjunct Faculty, Department of Agricultural Economics, Washington State University

2:15 THE PROS AND CONS OF PRODUCTION AND MARKETING CONTRACTS
Poultry Growers Needs in Contracts
Alfred R. Million, Poultry Contract Grower

4:00 FARMING STRATEGIES FOR WEATHERING TOUGH TIMES
Improving Financial Performance by Diversifying Crops
Richard H. Wahl, Extension Association Economist, Kansas Farm Management Association, N.W.

4:00 CONCENTRATION AND STRUCTURAL CHANGE IN AGRICULTURE
Concentration in Agribusiness
James M. MacDonald, Senior Economist, Economic Research Service, U.S. Department of Agriculture

Beyond Antitrust--The Case for Change
Peter C. Carstensen, Young-Bascom Professor of Law, University of Wisconsin Law School

HOW GRAIN SHIPPING AND PROCESSING FIRMS ARE HANDLING BIOENGINEERED PRODUCTS

Dan Dye
Vice President, North American Grain Group, Cargill, Incorporated

As a grain handler and primary processor of agricultural crops, our most important job is to make connections across the global agrifood system – between farmers and the people and companies that turn that grain into livestock feed, industrial inks, oils and plastics, and, of course, into the consumer food products that sustain all of us. We try to bring both ends of the food chain closer together – to help farmers gain a better understanding of what feed and food manufacturers want and are willing to pay for, and to help feed and consumer food companies recognize what it takes to produce the quality they seek.

Most of the time, producers and end users can rely on fairly clear market signals to help make decisions about what to plant and what to buy. That's not necessarily the case with genetically enhanced crops today.

All the noise surrounding agricultural biotechnology has created an enormous amount of uncertainty and confusion. What should farmers plant? How big is the market for conventional grains? Will there be premiums for non-genetically enhanced grains? Will those premiums be large enough to offset the higher production costs for conventional grains? Can the U.S. grain-handling system meet the challenges of a market that seems to be shifting from a commodity focus to greater specialization? Will the current debate over genetically enhanced grains cripple future biotechnology research and development? And perhaps the trickiest question of all -- What do consumers really want?

I wish I could tell you that I had all the answers. Unfortunately, I don't. But I can tell you how our company is approaching these issues.

Cargill has been supportive of farmers who want to use biotechnology since the first genetically enhanced corn and soybeans were commercially planted in the United States in 1996. But a couple of months ago, we decided that we owed it to our farmer customers to restate our position – to try to take at least some of the uncertainty out of an uncertain market. We told our farm customers that we would accept crops enhanced through modern biotechnology at our U.S. grain-handling, oilseed processing and corn wet milling facilities for crops planted in 1999 and 2000.

Although our processing plants will accept only those grains and oilseeds that have been approved in Europe, we will work with producers to find other markets for those few varieties of corn that have not yet been approved. Our grain-handling facilities will handle all varieties approved in the United States. We ask farmers who will be delivering varieties that have not yet been approved in Europe or Japan to notify us so that we can channel those crops into appropriate markets.

We believe very strongly that farmers should have the choice and the option of planting and marketing genetically enhanced crops, conventional crops and a wide range of specialty grains and oilseeds. Cargill is participating in all of these markets, including the market for conventional grain.

We are working with customers who are requesting conventional grain on a case by case basis. We won't guarantee that any shipment is 100-percent gmo-free. We will, however, work to meet reasonable tolerances, and we will establish an identity-preserved, traceable system that guarantees the source and the handling and shipping methods used.

Identity preservation is a traceable "chain of custody" that begins with the grower's purchase of seed and continues through the shipping and handling system. It is not the same as segregation, which suggests completely separate marketing systems for genetically enhanced and non-genetically enhanced grain. Such a system, in our view, is neither practical nor economically viable.

On the other hand, the logistics of an IP system, while complicated and more costly, are doable. Companies, like Cargill, have been involved in specialty grains markets for years, and we have experience in using identity-preservation systems to capture increased value for the producer, the handler and the final customer.

The genius of the U.S. agricultural system is that we are very, very good at moving huge volumes of undifferentiated commodities from producers to consumers at an extremely low cost. We understand commodity markets. We are fast, efficient and have well-established methods of setting values and evaluating risks.

There are a number of customers who seem to believe that we can operate a niche market with the same level of efficiency and low costs. We can't. And today, the market for non-genetically enhanced grain is essentially a niche market.

Conventional grains cost more to produce and, if they are to be identity preserved, require a lot of special handling at the farm. To prevent inadvertent commingling with enhanced grains that are now so pervasive throughout U.S. agricultural areas, planters have to be thoroughly cleaned between fields. Farmers need to pay attention to field location and wind conditions to prevent cross-pollination. Harvesting equipment and storage bins need to be thoroughly cleaned, and farmers may need additional storage to identity preserve non-genetically enhanced crops. Farmers need to be compensated for those additional costs.

Similar steps need to be taken at the country elevator or terminal. Separate bins have to be prepared and cleaned. Trucks need to be dumped in the right pit. Pits, conveyers and loading equipment need to be cleaned as do trucks, railcars or barges at every stage in the supply chain. These extra steps reduce efficiency and raise handling costs.

Finally, transportation costs are volume driven and rise quickly for small, irregular shipments that cannot be commingled with other grain.

Some customers are prepared to pay the additional costs for identity-preserved conventional grains and oilseeds, but many are not.

The biotech debate has made the job of connecting producers and the best markets at home and abroad more challenging and more complex in the short term. But I believe the market ultimately will sort out the signals. We just need to keep our heads and remember what it is that we are here to do – to provide abundant supplies of safe, nutritious food to a growing world population.

At Cargill, we believe that biotechnology can be an important tool in helping us meet the central challenge of this century – to feed several billion additional people without having to plow up the most fragile lands on the planet to do it. We cannot force the technology on consumers, but if the past few months have taught us anything it is that we as an industry – producers, grain handlers, livestock feeders and food companies – must do a better job of promoting the benefits of modern biotechnology.

THE OUTLOOK FOR FOOD PRICES IN 2000

Annette L. Clauson
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After increasing 2.1 percent in 1999, the Consumer Price Index (CPI) for all food is expected to increase 2 to 3 percent in 2000. Food at home is projected to increase 2 to 2.5 percent while food away from home should increase 2.5 to 3 percent. The 1999 increase of 2.1 percent was the smallest increase for all food CPI since 1992 when the increase was 1.2 percent. This follows the baseline projection of an average growth rate of 2.1 percent from 1999 to 2009.

Retail food price changes are underpinned by general economic factors that influence food prices and the relationship between farm and marketing costs. In recent years, food price increases have been small due to the low general inflation rate, which is forecast to increase 2.3 percent in the baseline for 2000, after increasing 2.1 percent in 1999; a larger share of the food dollar going to purchases of food away from home, which reached a record 47 percent in 1998; the continued decline in the farm value share of the retail price for most food items, which is expected to average 21 to 22 cents in 1999 and 2000; and increasing economies of size in the farm sector.

Food price changes are also a key variable determining what proportion of income consumers spend for food and what is left for purchases of other goods and services. In 1998, 11.0 percent of household disposable personal income went to pay for food, with 6.7 percent for food at home and 4.2 percent for food away from home. The downward trend in the proportion of household disposable personal income going toward food should continue into 2000. The 1999 CPI increase of 2.5 percent for food away from home was less than the two previous years, indicating that restaurants and fast food establishments have adjusted to the tighter labor markets and increased general wages. Comparing December 1999 with December 1998, prices for full service meals and snacks (restaurants) increased 2.2 percent and prices for limited service meals and snacks (fast-food) increased 2.6 percent. Competition among restaurants and fast-food establishments remained strong in 1999 with lower costs for raw materials, especially food, contributing to a smaller index increase.

In summarizing 1999 food price increases, large consumer demand coupled with slow growth in milk production contributed to higher retail prices for dairy products; reduced fresh fruit supplies led to higher retail prices (four days of freezing temperatures in late December 1998 in California and cold temperatures in Florida squeezed fresh fruit supplies through much of 1999 as the 1998/99 U.S. citrus crop was 23 percent below the previous season); large supplies of competing meats led to retail price decreases for pork and small increases for beef and poultry; lower feed prices led to larger egg production and a drop in retail prices; and adequate coffee supplies led to lower prices in the nonalcoholic beverages index. The following discussions highlight 1999 supplies and prices and focus on expected CPI changes for 2000:

- **Meats**. U.S. livestock producers are benefiting from inventory declines that are reducing production, and a booming economy that is fueling demand for meat products. Feed costs remained relatively low in 1999, boosting producers' returns. Although poultry producers are benefiting from low feed costs, rising production is pressuring wholesale and retail prices. Declining red meat production and moderating poultry production in 2000 will push total meat production below a year earlier for the first time since 1982.

  With the absence of food aid to Russia, red meat exports are expected to decline 4 percent in 2000, but commercial sales will be about the same as in 1999. The expected decline in beef production and higher U.S. prices will make the United States a more attractive market for other beef exporting countries, with beef imports expected to increase about 5 percent. After increasing at double-digit rates in 1998 and 1999, U.S. pork exports are expected to drop about 3 percent in 2000 as major pork exporters try to regain Asian markets lost during the financial crises. After declining the past 2 years, poultry exports are expected to rise about 3 percent.

- **Beef and veal**. Beef production was up nearly 3 percent in 1999 to 26.4 billion pounds, breaking the old beef production record set in 1976. Beef production is expected to remain large the first half of 2000 as the number of cattle on feed inventories remain at a record high, with production expected to decline sharply the second half of the year. Exports are expected to decline 2 to 3 percent in 2000 because of lower production, higher prices, more stable currencies, and no beef aid to Russia. However, beef imports for 1999 surpassed earlier expectations, up almost 9 percent, and are expected to reach a record high of 3.0 billion pounds in 2000, 5 percent higher than 1999.

  Domestic beef supplies are likely to remain tightest in the fourth quarter of 2000 and continue to tighten over the next couple of years. With smaller supplies, consumption is also expected to be lower in 2000, at 67.5 pounds per capita. Retail prices for Choice beef were above $3.00 a pound in late 1999 for the first time since 1993, reflecting tight supplies of Choice beef and very strong demand for higher quality beef. After increasing 2.0 percent in 1999, the CPI for beef is expected to increase 4 to 6 percent in 2000. This would be the largest annual increase since 1993, when the beef CPI increased 3.6 percent.

- **Pork**. Commercial pork production was a record 19.3 billion pounds in 1999, up over 1 percent from a year earlier. Following two consecutive record years, production is expected to fall to 18.6 billion pounds in 2000. Responding to low returns, hog producers began to reduce their breeding herds in late 1998 and continued to reduce them through 1999. The reductions ensure lower pork production in 2000, higher hog prices, and a boost in producers' returns given expectations for continued low feed costs. With pork production expected to decline 4 percent in 2000, pork consumption will likely decline about 1.5 pounds from 1999 levels, to 51.4 pounds per person in 2000.

  With beef production declining sharply in second-half 2000 and broiler production expected to moderate, retail pork prices are expected to increase 4 to 6 percent in 2000

after declining 1.8 percent in 1999 and 4.7 percent in 1998. Given the outlook for a strong economy, the demand for meats at fast food outlets is expected to continue, placing upward pressure on bacon as restaurants and fast food establishments bid bacon away from retail food stores. Over time, pork demand appears to have increased in response to higher quality, greater consistency, and larger cut size offered by the industry.

- **Other meats** increased 1.0 percent in 1999, and in 2000 prices are expected to increase 3 to 5 percent, slightly below forecasted beef and pork price increases. Other meats are highly processed food items (hot dogs, bologna, sausages) with their price changes influenced by the general inflation rate as well as the cost of the meat inputs.

- **Poultry**. The CPI for poultry increased 0.5 percent in 1999, with an increase of 0 to 2 percent expected in 2000. Competing supplies of red meat will be an important factor in overall meat prices in 2000, as projected declines in beef and pork production should prevent broiler prices from dropping even lower. Broiler meat production for 1999 was 29.4 billion pounds, and is expected to increase to 30.9 billion pounds in 2000. Broiler production is expected to continue increasing in 2000, but at a slower 5 percent rate. Turkey production was 5.2 billion pounds in 1999 and is forecast to increase slightly, up to 5.3 billion pounds in 2000.

  Broiler exports are expected to expand in 2000, with greater shipments going to a number of Asian markets and to a slowly recovering Russian market. U.S. broiler exports in 2000 are expected to be 4.75 billion pounds, up almost 3 percent from 1999, or about the same as 1998. The export expansion is expected to continue driving the poultry industry's ability to efficiently convert feed to meat, lowering its cost relative to both beef and pork. Additionally, demand in developing countries is expected to expand due to rising populations and a growing preference for a western type diet.

- **Fish and seafood**. The CPI for fish and seafood was up 2.0 percent in 1999, with an expected 2 to 3 percent increase in 2000. More than 50 percent of the fish and seafood consumed in the U.S. in 1999 came from imports, with another 20 to 25 percent from U.S. farm-raised production. Larger imports of shrimp, talapia, and salmon tempered the CPI increase in 1999 as strength of the U.S. dollar over other currencies continues to favor a rise in imports, especially from the Asian countries.

  The U.S. has one of the world's largest fishing industries with year-round production. In the 1990's, U.S. per capita seafood consumption has remained flat, between 14.8 and 15.2 pounds of edible meat per year, with any increases in total domestic seafood consumption coming from population growth. However, a strong U.S. economy is expected to boost away from home food demand as people travel and eat out more. This is especially important for seafood, as a large percentage of seafood is consumed at restaurants.

- **Eggs**. Retail egg prices fell 5.4 percent in 1999, with no CPI index change expected in 2000. Egg production increased nearly 4 percent in 1999, lowering wholesale and retail egg prices. Table egg production is expected to increase about 2 percent in 2000, with a

4 to 5 percent increase in hatching egg production raising the total egg production. This will continue to place pressure on egg prices, with negative net returns expected for producers. Higher production levels and slower growth in exports led to lower retail prices in 1997, 1998, and 1999. Per capita consumption is expected to reach 258.4 eggs in 2000, up 1 percent from 1999.

- **Dairy products**. A robust economy is projected to keep dairy demand brisk in 2000, as milk output is expected to increase more than 2 billion pounds. For most of 1999, production could not keep pace with demand, as the CPI for dairy products increased 5.8 percent. As the growth in milk production progresses due to higher producer prices, lower feed prices, and ample alfalfa supplies, retail prices are expected to decline 1 to 2 percent in 2000.

  Strong consumer demand for dairy items, especially gourmet ice cream, cheese, and butterfat products, is expected to continue this year. Consumer willingness to buy these items is partly due to a 4 percent increase in disposable personal income. Increased spending for away-from-home eating and the willingness to pay for convenience and other forms of commercial food preparation were also important factors.

- **Fats and oils** increased 1.0 percent in 1999 and is expected to be up another 1.5 to 2.5 percent in 2000. The small index increase was largely due to lower retail prices for butter, which accounts for 31 percent of the fats and oils index. The remaining items contained in the fats and oils index are highly processed food items, with their price changes influenced by the general inflation rate in addition to U.S. and world supplies of vegetable oils. Soybean oil is the primary oil used in the production of vegetable oil products, however the relationship between soybeans and the retail price of vegetable oils is complex. Soybean oil is a joint product with soybean meal, which is primarily used for animal feed.

- **Fresh fruits**. Higher retail prices for Valencia and navel oranges, grapefruit, lemons, and pears boosted the CPI fresh fruit index by 8.0 percent in 1999. The 1998/99 U.S. citrus crop dropped 23 percent from the previous season, mostly due to poor weather. California's citrus output fell 39 percent in 1999 and Florida's citrus production was down 20 percent from the previous year's record.

  After seasonally lower banana prices in 1998, higher retail prices were forecast for most of 1999 due to tropical storm Mitch which hit the banana growing areas of Honduras and Guatemala in November 1998. Significant retail price increases did not occur however. This was due to the ability of Ecuador, Costa Rica, and Columbia, who historically provide the U.S. with an additional 60 percent of bananas, to fill supply gaps caused by tropical storm Mitch.

  Citrus production is expected to be up in 2000, forecast to be 19 percent higher than last season. U.S. orange production in 1999/00 is forecasted at 12.1 million tons, up 22 percent from last year's crop with larger crops in Florida (up 14 percent), California (up

76 percent) and Texas (up 11 percent). The much reduced crop in California last year kept prices for fresh-market oranges up sharply throughout 1999. California's navel and Valencia crops are forecast up 90 percent and 59 percent this year. Grapefruit production is forecast to increase 5 percent to 2.6 million tons, making up 16 percent of the overall domestic citrus crop. Grapefruit production in Florida and California are expected to be up 6 percent and 7 percent, respectively, while the crops in Arizona and Texas are anticipated to be 12 percent and 10 percent smaller. Imports provide most of the tropical fruit supplies in the U.S., with bananas, mangoes, pineapples, and papayas the most popular.

The major fresh fruits consumed continue to be bananas, apples, oranges, and grapes. Higher retail prices for fresh oranges, (navel oranges were up 49 percent and Valencia oranges increased 44 percent), which account for 20 percent of the fresh fruits index, contributed to the fresh fruit index increase of 8.0 percent in 1999. Retail prices averaged above the previous year for other fruits, including grapefruit (up 8 percent), grapes (up 16 percent), lemons (up 11 percent), peaches (up 5 percent), pears (up 2 percent), and strawberries (up 3 percent). With the possibility of significantly higher retail banana prices in 1999, the average retail price was actually unchanged from the year before. Retail prices for red delicious apples in 1999 averaged 5 percent below the previous year. Although apple production fell 7 percent in the fall of 1999, consumers paid lower retail prices earlier in the year due to a record 1998 crop. With continued U.S. consumer demand for fresh fruits and a return to normal production levels for major fruits, the fresh fruit CPI is forecast to increase 2 to 3 percent in 2000.

Fresh vegetables. Fresh-market vegetable acreage increased 1 percent in 1999, with summer vegetable area for harvest up 5 percent over a year ago. With normal growing conditions in major fresh vegetable areas in 1999, the CPI for fresh vegetables fell 3.0 percent in 1999.

Despite cool, rainy spring weather in California, the summer drought in the East, and hurricanes in the South, average shipping-point prices were the lowest since 1994. This lead to lower than average retail prices for many vegetables throughout 1999. Retail prices averaged below the previous year for most major items, including lettuce (down 11 percent), broccoli (down 9 percent), peppers (down 9 percent), cabbage (down 7 percent), celery (down 4 percent), and tomatoes (down 8 percent). Retail prices for carrots increased 1 percent due largely to weather-reduced supplies this past winter and spring, with prices also slightly higher for potatoes.

One benefit of the sustained low prices in 1999 is expected to be increased per capita use of fresh market vegetables into 2000. Per capita use of all vegetables and melons reached a record 455 pounds in 1999, up 4 pounds from 1998. Use of fresh vegetables and melons (excluding potatoes, sweet potatoes, and mushrooms) is forecast to total a record high 165 pounds per person in 2000.

In response to the lower grower and retail prices, growers would have the incentive to

reduce acreage. However, the winter-season vegetable acreage in primary desert production areas is up for several major vegetables including tomatoes and lettuce. If the weather and growing conditions in the major fresh vegetable growing areas remain normal in 2000, the fresh vegetable index is forecast to increase 2 to 3 percent.

Processed fruits and vegetables. Adequate supplies of most fruits and vegetables for processing limited the CPI increase for processed fruits and vegetables to 2.1 percent in 1999. Contract production of the four major processing vegetables (tomatoes, sweet corn, green peas, and snap beans) increased 16 percent in 1999. Acreage harvested under contract was up 3 percent and yields were higher for tomatoes, sweet corn, and snap beans. As a result of low stocks and strong wholesale prices, tomato processors increased contract production to 11.5 million tons. The ready availability of canned and frozen vegetables, frozen concentrate orange juice and other fruit supplies kept the CPI increase for processed fruits and vegetables to 2.1 percent in 1999, with an expected increase of 2 to 3 percent in 2000.

- **Sugar and sweets**. Domestic sugar production was up almost 3 percent to 8.3 million tons in 1998/99 and is expected to hit a record 8.9 million short tons in 1999/2000. Relatively low inflation, along with increased production, lower retail prices for selected sugar-related food items kept the 1999 sugar and sweets index increase to only 1.4 percent. Although U.S. sugar consumption has grown at a rate of about 1.9 percent per year since 1985/86 and sugar use by industrial users has risen, the CPI is projected to increase a moderate 1.5 to 2.5 percent in 2000.

- **Cereal and bakery products** account for a large portion of the at home food CPI--almost 16 percent. With grain prices lower this year and inflation-related processing costs modest, the CPI for cereals and bakery products increased 2.2 percent in 1999. Most of the costs to produce cereal and bread products are for processing and marketing, more than 90 percent in most cases, leaving the farm ingredients a minor cost consideration. With competition among producers and consumer demand for bakery products expected to remain fairly strong, the CPI is forecast up 2 to 3 percent in 2000.

- **Nonalcoholic beverages**. The CPI for nonalcoholic beverages increased 1.0 percent in 1999 and is forecast to increase another 2 to 3 percent in 2000. Coffee and carbonated beverages are the two major components, accounting for 28 and 38 percent of the nonalcoholic beverages index. After lower soft drink prices in 1997 and 1998, retail prices were slightly higher in 1999. Lower coffee prices in 1999 reflected a near-record crop in Brazil, the largest producer of Arabica coffee beans. Weather has been excellent for the current crop, with no shortage of coffee beans expected in the next year. The U.S. imports up to 80 percent arabica beans along with 15-20 percent robustas, which go mainly to soluble (instant) coffee or are blended with arabicas.

  U.S. retail coffee prices have fluctuated since 1994, when Brazil experienced a major freeze to their coffee trees. Recent near-record production should lead to larger U.S. stocks and continued lower consumer prices. With coffee prices continuing to decline,

the CPI for nonalcoholic beverages is expected to moderate at a 2 to 3 percent increase in 2000.

Other foods. Other miscellaneous prepared foods are highly processed and are largely affected by changes in the all-items CPI. These products include frozen dinners, pizzas, and precooked frozen meats. Competition among these products and from the away from home market should continue to dampen retail price increases for items in this category. In 1999, the CPI for this category increased 2.1 percent and is expected to increase 2 to 3 percent in 2000.

Changes in Food Price Indicators
1998 through 2000

Items	Relative importance [1]/	1998	Final 1999	Forecast 2000
	--Percent--	----------Percent Change----------		
All Food	100.0	2.2	2.1	2 to 3
Food Away From Home	37.2	2.6	2.5	2.5 to 3
Food at Home	62.8	1.9	1.9	2 to 2.5
Meats	10.8	-1.9	0.5	4 to 6
Beef and Veal	4.8	-0.2	2.0	4 to 6
Pork	3.8	-4.7	-1.8	4 to 6
Other Meats	2.2	0.9	1.0	3 to 5
Poultry	3.2	0.3	0.5	0 to 2
Fish and Seafood	2.2	2.6	2.0	2 to 3
Eggs	0.8	-3.3	-5.4	-1 to 1
Dairy products	6.7	3.6	5.8	-2 to -1
Fats and Oils	1.9	3.7	1.0	1.5 to 2.5
Fruits and Vegetables	9.0	5.7	2.5	2 to 3
Fresh Fruits and Vegetables	6.9	7.3	2.8	2 to 3
Fresh Fruits	3.5	4.3	8.0	2 to 3
Fresh Vegetables	3.4	10.9	-3.0	2 to 3
Processed Fruits and Vegetables	2.1	1.7	2.1	2 to 3
Sugar and Sweets	2.4	1.6	1.4	1.5 to 2.5
Cereals and Bakery Products	10.0	2.0	2.2	2 to 3
Nonalcoholic Beverages	7.0	-0.3	1.0	2 to 3
Other Foods	8.5	2.7	2.1	2 to 3

[1]/ BLS estimated expenditure shares, December 1998.

FARM FINANCIAL PROSPECTS: WHAT'S AHEAD FOR FARM BUSINESSES BY TYPE AND REGION OF THE COUNTRY

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The impacts of six consecutive years of large harvests for the world's major agricultural producing countries are clearly reflected in USDA's initial income forecast for the year 2000. By historical standards, this period has been unusually favorable for crop production. At the conclusion of 1999, supplies of most agricultural commodities remained abundant due to large crop harvests around the world. The outlook for farm product demand suggests little or no near-term growth. As a result, a significant and sustained commodity price recovery is unlikely in the near-term without unfavorable weather. In both 1998 and 1999, the U.S. government reacted with legislation to increase assistance to farmers. Payments forthcoming as part of emergency legislation coupled with the first extensive use of the Loan Deficiency Payment Program has helped to maintain farm income and temper financial hardship for many producers (figure 1).

Low Commodity Prices and Government Assistance Figure Prominently in 2000 Forecast

Net farm income is forecast to be $40.4 billion in 2000, a decline of $8.1 billion from the preliminary estimate of $48.5 billion for 1999, as a consequence of diminished expectations for near-term improvements in many commodity prices and government payments receding from 1999's historical high (table 1). Net cash income in 2000 is forecast at $49.6 billion, $10 billion less than the preliminary estimate for 1999 of $59.7 billion. Prices for major crops will likely remain low, but stable expenses and potential cost savings as farmers adjust production practices should help lessen the impacts on farmer's bottom lines. Placing the farm income forecast for the year 2000 into a longer-term perspective, net farm income is forecast to be 88 percent of its 1990-99 average of $45.8 billion. Likewise, the forecast for net cash income places it at 90 percent of the previous decade's average of $55.2 billion.

Crop receipts are forecast to fall by $2 billion in 2000, reaching their lowest level since 1994. The decline in crop receipts is concentrated within major field crops--food grains, feed grains, cotton, oil crops, and tobacco. Cash receipts will be up $350 million for fruit, vegetable, and greenhouse or nursery crops. Loan deficiency payments to producers of major field crops, such as corn and soybeans, are forecast at $7.8 billion for 2000. In 1999, about $6.9 billion of direct payments were for loan deficiency payments (LDP). LDP's compensate farmers for market prices being below the Commodity Credit Corporation loan rates and increase with declines in market prices, once prices are below the loan rate.

In 1998 and 1999, government payments, with additional emergency assistance, were sufficient to maintain net farm income at and even above the decade average. The majority of the payments came from three government programs: the production flexibility contract (PFC) payments, the loan deficiency payments (LDP), and emergency supplemental appropriations enacted in October of both 1998 and 1999 (figure 2). The forecast for 2000 includes substantial support from PFC and LDP payments with the total from the two programs being about the same as 1999. Under current legislation, government payments are expected to decline by $5.5 billion in 2000, which nearly represents the difference between the current 2000 farm income forecast and the decade average.

Total production expenses are forecast to be $192.3 billion, an increase of one-half of one percent over the preliminary estimate for 1999. With little change forecast for crop or livestock production, farmers are not expected to make significant adjustments in the quantities of inputs purchased. The lack of optimism for any rise in crop prices received by farmers and small increases in prices paid by farmers implies that farmers will continue to experience a cost-price squeeze. As a consequence, farmers are likely to exhibit additional caution in the purchase of large capital items and may well increase the scrutiny of their selections and application rates for operating inputs and their operating practices for potential adjustments leading to cost savings.

Farm business debt is anticipated to stand at about $172.5 billion by the end of 2000, down slightly from 1999, which is also estimated to be slightly below its 1998 level. Given likely 2000 price and income levels, and uncertainty concerning the timing of price improvements in cash markets for many agricultural commodities, lenders are expected to encourage their farmer clients to improve their balance sheets by applying some of their government payments to existing debt. Actual changes in farm business debt levels in both 1999 and 2000 will depend heavily on the timing and the extent to which farmers use these payments to improve future financial risk positions by reducing outstanding loan balances.

Despite the increase in debt in recent years, farm business balance sheets have shown steady improvement throughout the 1990's, especially since 1992 (figure 3). Equity positions have generally improved, and debt-to-asset ratios have declined, as the increase in farm business debt has been more than offset by the rise in the value of farm business assets. The value of farm real estate has risen by more than 30 percent from 1992 through the end of 1999, while farm mortgage balances have increased less than 20 percent. As a result, the degree of U.S. farmland leverage has declined substantially, providing most producers with an added equity cushion to lessen the impact of short-term declines in income.

Low Commodity Prices Aggravate Cash-flow Problems for Farm Businesses in Several Regions

Relative to 1998, the largest declines in average net cash income are expected in the *Mississippi Portal*, *Eastern Uplands, Southern Seaboard,* and the *Heartland* (see box on ERS Resource Regions). In addition to continued low prices for corn and soybeans, some of these areas of the country will be hard hit by lower prices for rice, and a decline in tobacco receipts. Higher cattle prices and relatively cheap feed should boost average net cash income in the *Northern Crescent*, *Northern Great Plains*, and *Prairie Gateway* regions relative to the 1994-98 average. For most

regions, at least one in five farm businesses will not cover cash expenses in 2000. The exceptions are the *Heartland* and *the Northern Crescent* where smaller shares of farms are expected to have negative cash incomes. The largest increases relative to 1998 in the share of farms with negative net cash income (7 percentage points) occur for the *Southern Seaboard* and *Mississippi Portal* regions (figure 4). The Eastern Uplands and Heartland regions also experience relatively large increases in the percent of farms with negative net cash income.

Unexpected declines in farm business earnings can lead to debt repayment problems. A relatively high percentage of farm businesses in *the Northern Great Plains* and *Prairie Gateway* regions have had persistent debt repayment problems (figure 5). Even though the *Northern Great Plains* region has had the highest incidence of debt repayment difficulty, this situation should improve in 2000. In the Prairie Gateway, 18 percent of farm businesses are expected to have debt repayment problems, which is a slight increase over 1998, but well below 1997. A substantial increase in farm businesses with debt repayment difficulties is expected in the *Mississippi Portal* region. The share of farm businesses with debt repayment difficulty of 20 percent in the Mississippi Portal would be the highest of any region in 2000.

On Average, Net Cash Income Is Expected to Decline for All Farm Types In 2000

Current expectations are for net cash incomes for all farm types to be less in calendar year 2000 than they were in 1999. The story for net cash income is basically the same for all commodity specialties. A stable or, at best, a very modest increase in livestock receipts will not be sufficient to offset the continued erosion of crop receipts, a reduction in government payments from their historic high levels of 1999, and a modest rise in production expenses.

While reductions in net income will be larger for major row-crop farms, specialty crop and livestock farms will also experience reductions in income from 1999. When compared with the average amount of income earned during the 1994-98 time frame, a slightly altered picture emerges. Income for major row-crop farms will be less than the previous five-year average. Farms with the largest deviation from the five-year mean will include tobacco, cotton and peanut farms, general crop farms, and soybean farms. Specialty crop and livestock farms, apart from hog operations, should have incomes in 2000 that exceed their 1994-98 average. Beef cattle farms will have the largest increase of any farm type (table 2).

The reduction in income in 2000 will require farmers to manage cash flows more tightly. A higher proportion of debt service capability will be used, eliminating credit reserves and exposing a larger share of farms to potential debt repayment problems. Lower incomes rather than substantially rising debt levels or falling asset values will be the key factor that may contribute to rising debt service problems. The greatest increase in use of debt service capacity will be for major row-crop farms, especially those farms that specialize in the production of wheat and corn.

Net Farm Income Prospects for the Next Decade Are Expected To Be Lower Than for the Decade of the 1990's

Based upon USDA's Baseline projections, net farm income for 2001 could fall below $35 billion, significantly less than 1999's forecast of $48.5 billion and the 2000 forecast of $40.4 billion (figure 6). From 2001 forward net farm income is expected to gradually recover as farm prices strengthen over the decade. Average net farm income for the decade 2000-2009 is projected to be about $44.6 billion compared with the $45.8 billion average for 1990-1999. A record net farm income of $54.9 billion was set in 1996; a year of both exceptional harvests and market opportunities. In the baseline, income of this level is not reached until near the end of the first decade of the new millennium (table 3).

The continuance of low commodity prices puts estimates of cash receipts at similar levels during the 1999-2001 period. However, government payments, which bolstered gross income for 1999 and 2000, are projected to be considerably less in 2001 and beyond. Total government payments, now forecast at $22.7 billion for 1999 and $17.2 billion for 2000, are projected fall to $10 billion in 2001 and continue trending downward through the first half of the decade. Under current farm legislation, government payments should be expected to decline. Production flexibility payments, established in the 1996 Farm Act, were mandated to trend downward according to a declining fixed allocation budgeted for each successive year of the program. The reduction in program benefits from calendar year 2000 to 2001 is expected to be about $900 million. Loan deficiency payments, which are intended to be counter-cyclical, also will have reduced importance as a component of government assistance. Because the CCC loan rates for many commodities are based upon a moving average of market prices, the lower prices experienced in recent years will reduce the applicable loan rate. The combination of lower loan rates and increasing market prices results in a smaller amount of crop that will be eligible for benefits and a smaller payment rate. Lower loan rates are expected to have an impact beginning with 2001 when loan deficiency payments are expected to fall by more than $3 billion.

The "emergency" provisions of the Omnibus Consolidated and Emergency Supplemental Appropriations Act for Fiscal Year 1999 and the Agricultural Appropriations Act of 2000 provided supplemental assistance in the form of market loss and crop loss payments adding to cash receipts in 1998, 1999, and 2000. On a calendar year basis these programs added $2.8 billion to farm receipts in 1998, and are forecast to provide $8.7 in 1999 and $2.4 billion in 2000. Most of these funds will have been disbursed by the end of 2001, and since these emergency provisions have a pre-determined life span, there will be an additional decline in 2001 over 2000 payments. In all, about $7 billion less in government payments will be available to the farm sector in 2001 than in 2000, and total payments are expected to continue being a less important component of farm sector income through 2006. For 2001, the decline in government payments slightly exceeds the decline from 2000's forecast net farm income.

Recovering crop prices will be the key to the expanding crop receipts over the next decade. Crop receipts are projected to be $137 billion by 2009 as compared with the $93 billion forecast for 2000. Total cash receipts from sales of farm commodities can be expected to grow at more than 3.0 percent annually from 2000 onward. This rate of growth will be more rapid than the rate of expansion in cash receipts from 1990 to 1996. Expected growth will bring projected cash receipts from $190 billion in 2000 to $254 billion by 2009. Livestock receipts, in contrast to crops, are forecast at a near record level of $96 billion for 2000, and from there will continue to grow to $114 billion by 2009. Cattle and calf returns represent 30 percent of the increased livestock receipts, pork 7 percent, broilers 15 percent, and dairy production accounts for 38 percent.

Farm production expenses are expected to grow modestly over the entire baseline. Farmers will take steps to adjust their costs in the face of lower income prospects. Feed purchases will be lower in 1999-2001 reflecting lower cattle numbers and crop prices, but cattle numbers will recover and crop prices rise. Seed expenditures will grow slowly as crop acreage recovers. With reduced farm income and cash flow, debt management will be crucial to the financial condition of the agricultural sector. Even with the near-term cash flow difficulties facing the sector, a strong basic financial position achieved during the 1990's will help farmers weather the lows in major crop prices until exports and prices recover. In the longer run, increasing farm incomes and relatively low interest rates will contribute to asset accumulation and assist in debt management, thus leading to an improving balance sheet.

The value of farm real estate, the largest component of farm assets, is expected to stagnate in the next few years. The value of farmland has been slow to respond to decreases in crops cash receipts because government payments have bolstered farm income. The value of farmland also is affected by pressures from non-agricultural sources such housing and recreational uses. With farmland maintaining its value in the near term and growing again as cash receipts recover in combination with stable farm debt, the financial balance sheet of the aggregate farm sector should weather the current decline in cash income and end the baseline period in a strong position.

Farmers' Use of Repayment Capacity Rises Through 2001
Debt Stable but Repayment Problems to Intensify, then Ease

Lower income will reduce farm operators' ability to fully meet debt service payments on their loans in 2000. Anticipated interest rate rises are not expected to be large enough to cause a substantial increase in total farm sector interest payments, as any rate increase is likely to be offset by a stable to declining level of total farm sector debt. Although some additional operators may experience difficulty in generating sufficient farm income to meet principal and interest payments, widespread financial stress is unlikely.

However, farmers are expected to increase their use of repayment capacity substantially in 2000. Farm debt repayment capacity use (actual debt expressed as a percentage of maximum debt that could be repaid from current income) effectively measures the extent to which farmers are using their available lines of credit. This measure indicates that, in 2000, farmers are expected to use almost 66 percent of the debt that could be supported by their current incomes. Use of debt repayment capacity was 53 percent in 1997 and 59 percent in 1998. It declined to 56 percent in 1999, as farm incomes were bolstered by the infusion of government emergency assistance payments. The expected 2000 level would be the highest since 1986.

Debt service difficulties are expected to first worsen, then improve throughout the Baseline period. Further farm debt repayment problems are expected in 2001, when farmers' use of debt repayment capacity is projected to rise to 73 percent (figure 7). Then, as incomes rise, debt increases by modest increments, and interest rates remain generally favorable, farmers' use of repayment capacity declines continuously throughout the Baseline period, decreasing to 66 percent by 2004 and 55 percent by 2009.

Despite the rise in use of available credit capacity, the debt-to-asset ratio indicates that farmers' financial position is not expected to deteriorate in 2000. The farm sector debt-to-asset ratio is projected to modestly decrease to 0.162 at the end of 2000, as farm asset values are anticipated to rise slightly and debt levels stabilize. However, substitution of maximum debt into the debt-to-asset ratio computation indicates that any improvement due to rising asset values may be potentially offset by lower cash incomes. The maximum debt-to-asset ratio that could be supported from current cash income fell from 0.40 in 1997 to 0.37 in 1998 then rose to 0.40 in 1999. In 2000, it is expected to decline to 0.33; the lowest since 1984. The difference between actual and maximum debt-to-asset ratios suggests that farmers, in total, have the capability to safely manage existing debt. However, lower income available to service debt, coupled with lenders' emphasis on loan approval based on repayment ability rather than collateral values, will probably restrain any increase in farmers' borrowing activities.

USDA's Baseline Projections have Differential Impacts Across Resource Regions and Farm Types

As noted in the discussion of farm sector net income trends, income declines through 2001 and begins a gradual recovery. The initial fall in average net cash income is projected to have the largest impact on farms in the *Mississippi Portal* where there is a high concentration of cotton, rice, and soybean production (figure 8). Low commodity prices for the major crops in this region translate into two consecutive years of 30% or higher annual declines in average net cash income for 2000-01. During this two-year period all regions experience a decline in average farm business net cash income. The only exception is a small increase for farms located in the *Fruitful Rim* for 2001. The average decline in net cash income between 2000 and 2001 approaches 30% for the *Northern Great Plains* and *Prairie Gateway* regions. These regions have a relatively large concentration of field crop production and historically have had a high incidence of debt repayment problems.

The outlook for lower commodity prices and reduced level of government assistance has the largest impact on average income of wheat and soybean farms. During 2000-01, average net cash income of wheat farms is projected to have annual declines of 38 percent and 59 percent, respectively (figure 9). Farms that specialize in the production of soybeans should see income declines of 30 percent and 40 percent during this two-year period, respectively. Farms producing other cash grains should experience 30 percent annual declines in average net cash income. For livestock farms, the largest decline in average net cash income during 2000-01 is expected for dairy (figure 10).

The Outlook is Sensitive to Changes in the Farm Economy

The year 1996 was a banner year for farm income because exports were up and grain and soybeans prices were strong. The "market loss" payments provided in Congress' emergency legislation in the last two years are recognition of the sensitivity of farm income to exports and to grain and oilseed prices. Changes in prices of corn and soybeans, crops that represent 30 percent of total crop receipts, can cause crop receipts to vary widely (figure 11). If currently expected prices for corn and soybeans were replaced by 1996 values, crop cash receipts would be $20

billion (or 22%) higher than the current 2000 forecast. Over the last decade cash receipts for crops has been far more variable than receipts from livestock.

Government payments, with the recent importance of loan deficiency payments and the passage of emergency relief legislation in 1998 and 1999, have been a highly variable source of farm receipts. From 1990 to 1998, government payments ranged from a low of $7.3 to a high of $13.4 billion. Forecasts for 1999 government payments are nearly $23 billion. Consequently, farm income is very sensitive to government payments.

Livestock feed is the largest single item in farm expenses (21 percent), and one of the most variable expense items. Feed costs depend upon both the number of animals fed and prices of the grain and oilseed components of these feeds, which do not necessarily move in same direction or by the same magnitude. The cost of feed has varied by more than $1.0 billion from year-to-year for the years 1990 through 1998. Feed expenses for 1999 are expected to be $1.0 billion less than 1998 due to lower crop prices and fewer cattle on feed. Given the uncertainty surrounding petroleum prices, petroleum related inputs such as fuel and oil as well as fertilizer and pesticides are potentially important sources of variability in farm expenses. Combined, these expense items represent 26 percent of total production costs. From 1997 to 1998, fuel and oil expenses fell by $645 million due to lower petroleum prices. By mid-1999 OPEC's agreement to curtail production had raised prices notably. The result of this action is an expected increase of $775 million in fuel and oil expenses in 1999, and an additional increase of $ 1.0 billion for 2000. Management decisions employed by farmers and the availability of new technologies and production systems such as minimum tillage and precision agriculture can help reduce the impact of higher input prices, including petroleum, on the sector income.

Implications of the Financial Outlook

As difficult as the financial prospects for agriculture appears in the near term, there are aspects of the current economic situation that are encouraging. The Clinton Administration's proposed budget for the U.S. Department of Agriculture for fiscal year 2001 contains new spending aimed at providing a stronger safety net for farmers. The initiatives set forth are designed to broaden Federal support to more producers of more commodities in more areas of the country. Assistance to agriculture and rural communities could total more than $11 billion during 2000-2002 from these legislative proposals and current authorities. The impact of these programs is not anticipated in the Baseline.

In general, lenders are adequately prepared to handle any potential increases in loan repayment problems. All major institutional lender groups except the Farm Service Agency (FSA) continue to experience historically low levels of delinquencies, foreclosures, net loan charge-offs, and loan restructuring. In 1985, over 10 percent of all bank nonreal estate loans to farmers were either delinquent (past due 30-90 days) or nonperforming (past due 90 days or more plus nonaccruals). In the first quarter of 1999, the number of such loans was less than 2 percent (figure 12). Bank charge-offs rates, which reached 3.36 percent of nonreal estate loans in 1986, remained below 0.2 percent in the first quarter of 1999. In contrast, nonagricultural commercial bank consumer loan charge-offs typically run in excess of 2 percent, while consumer credit card charge-off rates have exceeded 4 percent annually since the late 1980's, and are currently above 6 percent.

Currently, the availability of funds is not the problem. Lenders continue to be more cautious in extending agricultural credit. Congress has authorized over $5.7 billion in FSA guaranteed and direct loan program authority in fiscal 2000 to assist farmers in obtaining needed credit. This is $1.9 billion over the $3.8 billion obligated during fiscal 1999. In the last two fiscal years, Congress has provided large supplemental appropriations for FSA farm loan programs to handle increased demand. Much of the increase in lending authority comes from greater operating loan funding. There is $3.0 billion in guaranteed operating loan (OL) authority for fiscal 2000, or more than $1.2 billion more than was obligated in fiscal 1999. The increase in authority represents a large shift in FSA's presence in farm credit markets. As recently as fiscal 1998, FSA had obligated only $2.2 billion in direct and guaranteed loan programs. If all the authority for fiscal 2000 is obligated, the $5.7 billion would be the greatest amount of FSA lending activity since the farm financial stress of the mid-1980s.

Prosperity in the general economy is important to maintaining farm household income levels. In 1998, off-farm earnings constituted 88 percent of operators' household income for all family farms. Most groups of small family farms (limited-resource, retirement, residential/lifestyle, and farming occupation/lower sales) received negative returns from farming activities (figure 13). Operators of limited-resource and retirement small family farms rely heavily on Social Security and other public programs for most of their income. Although we expect declines in income from farming activities in 2000, we expect little change in the total house income of operators of these small family farms. Households operating the remaining farms rely more heavily on farm earnings. Farming occupation/higher sales farms received 43 percent of operator household income from farm sources, large family farms received 56 percent of operator household income from farm sources, and very large family farms received 84 percent of operator household income from farm sources. Since households operating these larger farms are affected more by changes in income from the farm sector, we expect that household income for the operators of these farms will be down substantially.

As we approach the 2000 planting season, low prices are not a surprise. In fact, we have had at least a year of experience in dealing with their consequences. Many farmers, if they have not already done so, will be extensively reviewing all of their farm and household expenditures to determine where any potential savings can be found. That should be the focus of their early season planning. Results of several studies have suggested that cost savings are one of the most important ways to improve the bottom line. It also requires that items be prioritized and that sacrifices be made. It is not too early to think about marketing opportunities and a host of risk management tools that are available.

Geographic Areas Based on Land Resource Regions and Commodity Clusters

- **Northern Crescent.** Dairy farms were 17% of farms in 1997. Other major farm types included general field crop (23 %) and cash grain farms (19%). Area had 9% of U.S. cropland; slightly more than proportional acreage in corn, soybeans, and specialty crops. Most populous region.
- **Eastern Uplands**--15% of nations farms but only 5% of the value of production. Beef farms most prevalent type (48% of farms). Tobacco, general field crop, and other livestock were also prominent. Region has 6% of U.S. cropland. 60% of farms had sales of less than $10,000 in 1997.
- **Southern Seaboard**--11% of nation's farms and 9% of value of production in 1997. Two-thirds of farms were livestock farms. Beef farms most common type followed by general field crop and other livestock. Area covered 6% of Nation's cropland, but is over represented in rice, cotton, and specialty crop acreage. Region has 11% of U.S. population.
- **Heartland**--More than 20% of nation's farms located here, accounting for 23% of the value of production. Region has more than 25% of U.S. cropland, and the largest concentration of corn, soybean, and sorghum acreage. Cash grains and field crops dominate (3 of each 5 farms). Hog farms are also more common than elsewhere.
- **Mississippi Portal**--5% of farms and 4% of value of production in 1997. Beef farms were most common (44% of all farms). Cotton, rice, mixed crop and livestock farms were also common to the region. Region has 4.9% of cropland, but more than proportionately represented in cotton and rice.
- **Northern Great Plains**--Characterized by nation's largest farms, measured by acres operated. Cash grain, field crop, and beef farms are 95% of all farms. Region has 17% of cropland; more than proportionately represented in wheat, barley, oats and specialty crops.
- **Prairie Gateway**--Second highest share of U.S. cropland (19%). Tied with Northern Great Plains in wheat, oats, and barley acreage (35%) and is second behind Mississippi Portal in rice and cotton acreage.
- **Basin and Range**--4.5% of nation's farms and 4% of value of production in 1997. Features second largest farms based on acres operated. Beef farms were the most common farm type (41%). Farms growing high value crops 2nd most common (13%), followed by general field crop operations. Cash grains were 10% of farms. Region has 4% of cropland despite a large land area due to federal land holdings.
- **Fruitful Rim**--8% of cropland but 32% of specialty crop acreage and 21% of rice and cotton acres. Region has largest share of large and very large family operations as well as a large share of non-family farms. Over 37% of farms specialize in production of high value crops.

Resource Regions

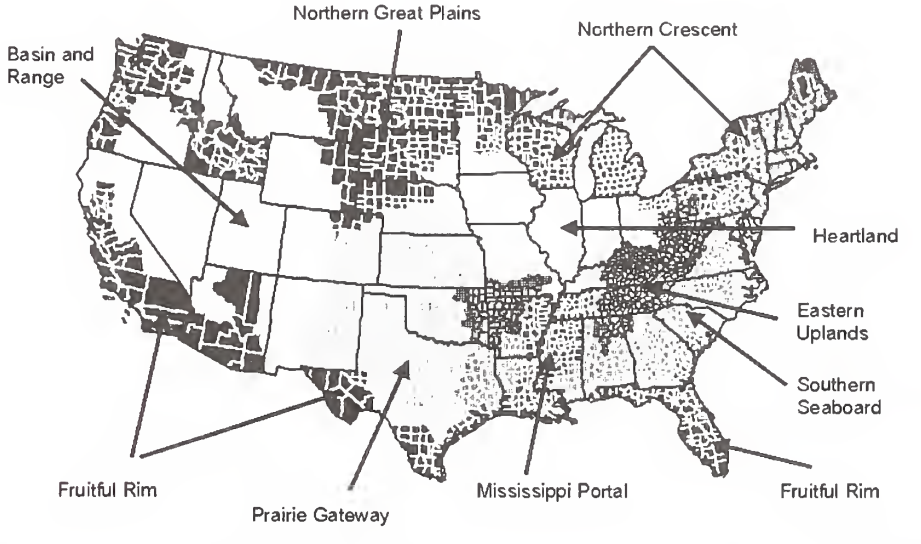


Table 1—Income statement for U.S. farm sector, 1996-2000F

	1996	1997	1998	1999P	2000F	Change from 1999 to 2000	
			$ billion			$ billion	%
Cash income statement:							
1. Cash receipts	199.1	207.6	196.8	191.9	189.9	-2.1	-1.1
Crops 1/	106.2	111.1	102.2	95.1	93.3	-1.7	-1.8
Livestock	93.0	96.5	94.5	96.9	96.5	-0.3	-0.3
2. Direct Government payments	7.3	7.5	12.2	22.7	17.2	-5.5	-24.3
3. Farm-related income 2/	11.0	12.4	13.8	14.4	14.1	-0.3	-2.1
4. Gross cash income (1+2+3)	217.4	227.5	222.8	229.1	221.1	-7.9	-3.5
5. Cash expenses 3/,4/	159.9	169.0	167.8	170.0	171.5	1.5	0.9
6. NET CASH INCOME (4-5)	57.5	58.5	55.0	59.1	49.7	-9.4	-15.9
Farm income statement:							
7. Gross cash income (1+2+3)	217.4	227.5	222.8	229.1	221.1	-7.9	-3.5
8. Nonmoney income 5/	10.3	10.6	11.3	11.5	11.6	0.1	0.9
9. Inventory adjustment	8.0	0.5	-1.0	-1.4	-0.1	na	na
10. Total gross income (7+8+9)	235.7	238.7	233.1	239.1	232.7	-6.5	-2.7
11. Total expenses	180.8	190.0	189.0	191.1	192.3	1.2	0.6
12. NET FARM INCOME (10-11)	54.9	48.6	44.1	48.1	40.4	-7.6	-15.9

P = preliminary. F = forecast.

1/ Includes CCC loans. 2/ Income from custom work, machine hire, recreational activities, forest product sales, and other farm sources. 3/ Excludes depreciation and perquisites to hired labor. 4/ Excludes farm households. 5/ Value of home consumption of farm products plus the imputed rental value of operator dwellings.

Totals may not add due to rounding.

Table 2--Farm business average net cash income forecasts

	Average 1994-98	1998	1999F	2000F	2000/ 1994-98 average	2000/ 1998	Share of U.S farm businesses
		$1,000 per farm			Percent Change		Percent
All U.S. farm businesses	61.6	78.6	81.8	68.3	11	-13	100
Resource Region:							
Heartland	49.7	58.6	59.8	49.3	-1	-16	31
Northern Crescent	61.0	87.1	88.5	77.1	26	-11	16
Northern Great Plains	48.6	64.1	79.4	60.5	25	-6	8
Prairie Gateway	54.1	70.0	85.3	67.7	25	-3	13
Eastern Uplands	35.5	42.1	41.3	33.7	-5	-20	7
Southern Seaboard	60.1	80.6	71.5	57.5	-4	-29	7
Fruitful Rim	120.9	172.7	173.2	157.4	30	-9	11
Basin and Range	57.2	69.6	77.2	66.4	16	-5	3
Mississippi Portal	78.6	78.5	80.7	48.3	-39	-38	4
Commodity Specialization:							
Mixed grain	51.9	59.5	65.5	45.5	-12	-24	14
Wheat	41.2	38.4	58.1	36.0	-13	-6	4
Corn	51.1	60.7	61.2	44.2	-14	-27	13
Soybeans	39.4	39.2	39.8	27.9	-29	-29	7
Tobacco, cotton, peanuts	68.8	83.3	68.9	41.6	-40	-50	5
Other crops	79.7	72.9	73.9	50.6	-36	-31	6
Specialty crops	134.0	220.0	218.3	220.7	65	0	8
Beef cattle	39.6	56.6	74.5	70.8	79	25	15
Hogs	60.4	55.1	55.3	56.3	-7	2	5
Poultry	55.8	71.3	72.6	67.3	21	-6	5
Dairy	64.8	95.7	95.3	74.9	16	-22	15
Other livestock	42.0	65.0	58.0	49.8	19	-23	3

F = forecast

Table 3--Farm receipts, expenses, and incomes in nominal dollars

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
						Billion dollars				
Cash receipts:										
Crops	93.3	96.6	100.4	105.5	110.7	115.5	120.9	126.9	132.0	136.9
Livestock	96.5	95.3	97.0	100.0	103.1	105.9	108.7	111.4	114.1	117.0
All commodities	189.9	191.9	197.5	205.5	213.8	221.5	229.6	238.3	246.2	253.9
Farm-related income	14.1	14.3	14.6	14.9	15.2	15.5	15.8	16.1	16.4	16.7
Government payments	17.2	9.9	8.1	7.3	6.2	6.1	6.0	6.0	6.0	6.0
Gross cash income	221.1	216.2	220.1	227.7	235.1	243.0	251.4	260.3	268.5	276.5
Cash expenses	171.5	172.4	174.8	180.1	185.2	190.1	195.2	200.5	206.0	210.9
Net cash income	49.7	43.8	45.3	47.5	49.9	52.8	56.2	59.9	62.5	65.6
Value of inventory change	-0.1	0.2	0.5	1.1	0.5	0.6	0.6	0.7	0.9	0.6
Non-money income	11.6	11.6	11.8	12.0	12.2	12.4	12.6	12.8	13.1	13.3
Gross farm income	232.7	228.0	232.3	240.8	247.8	256.0	264.6	273.8	282.5	290.5
Noncash expenses	15.3	15.7	16.0	16.3	16.4	16.4	16.3	16.3	16.3	16.3
Operator dwelling expenses	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6	5.6
Total production expenses	192.3	193.6	196.3	202.0	207.1	212.1	217.1	222.3	227.8	232.8
Net farm income	40.4	34.4	36.1	38.8	40.7	43.9	47.6	51.5	54.7	57.7
Farm assets	1,072.8	1,074.0	1,088.1	1,119.5	1,160.4	1,200.8	1,245.0	1,293.7	1,347.3	1,402.9
Farm debt	172.5	167.2	168.2	170.4	172.3	174.0	175.6	177.1	179.1	180.8
Farm equity	900.4	906.8	919.9	949.2	988.1	1,026.8	1,069.4	1,116.6	1,168.2	1,222.2
						Percent				
Debt/equity ratio	19.2	18.4	18.3	17.9	17.4	16.9	16.4	15.9	15.3	14.8
Debt/assets ratio	16.1	15.6	15.5	15.2	14.8	14.5	14.1	13.7	13.3	12.9

Figure 1

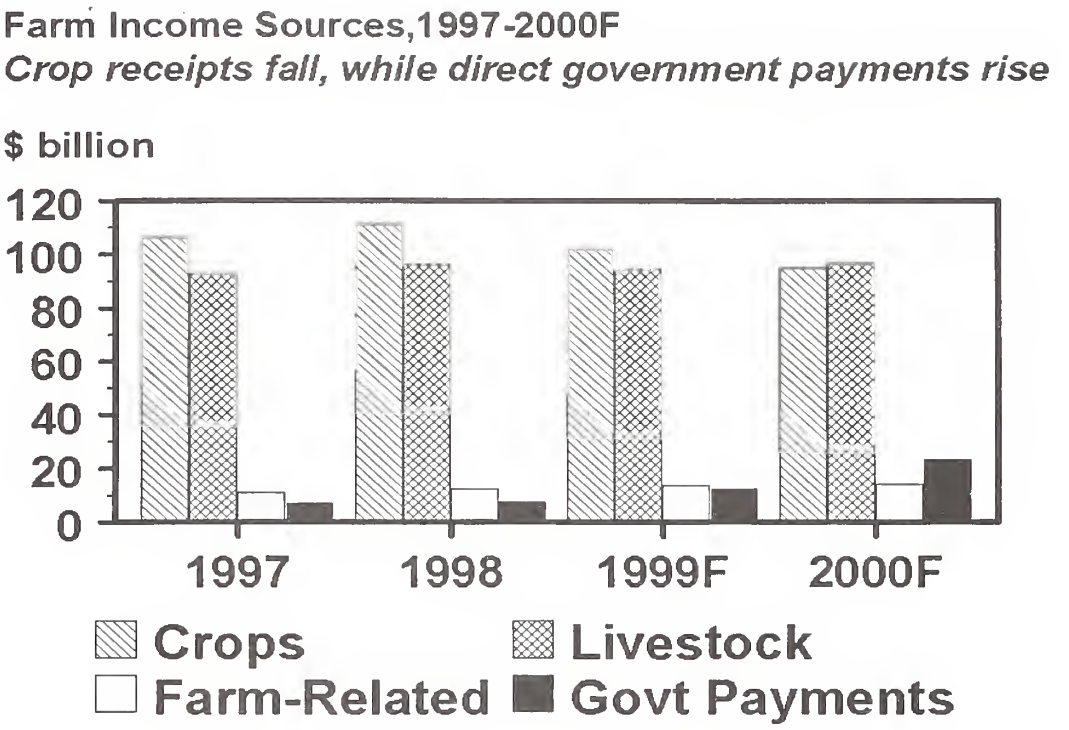
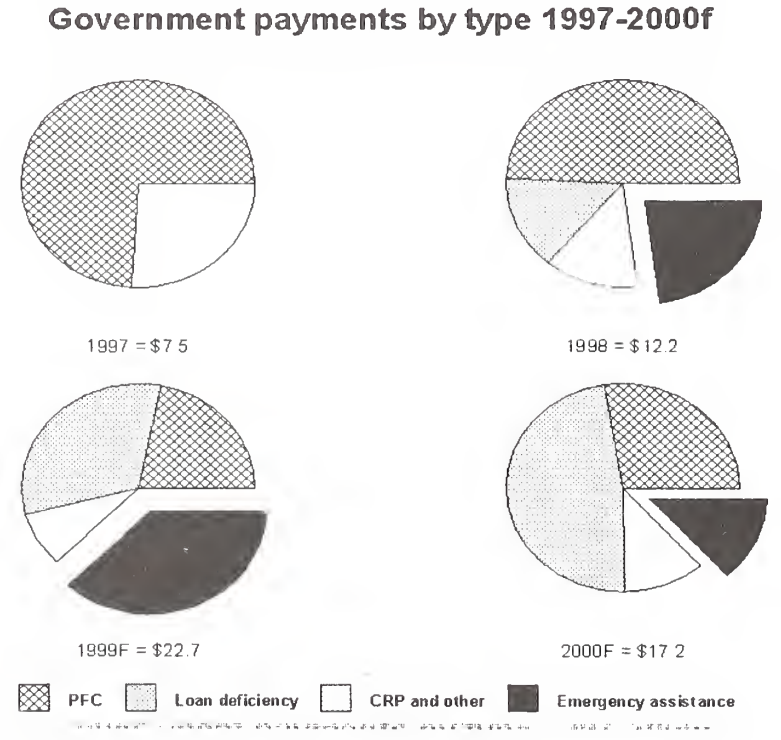


Figure 2



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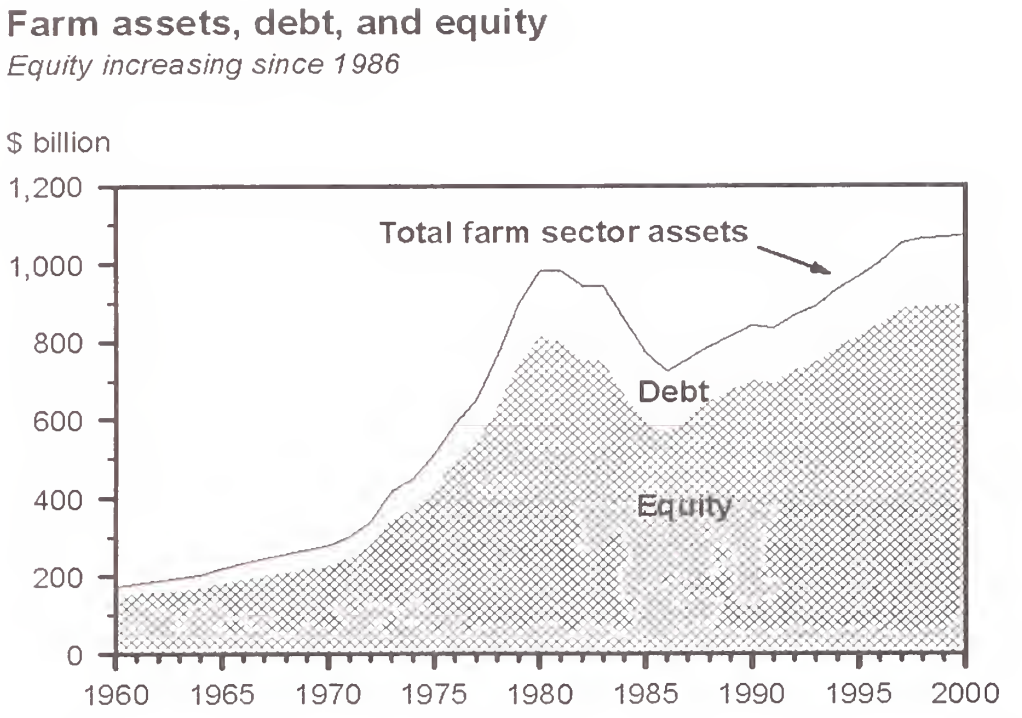


Figure 4

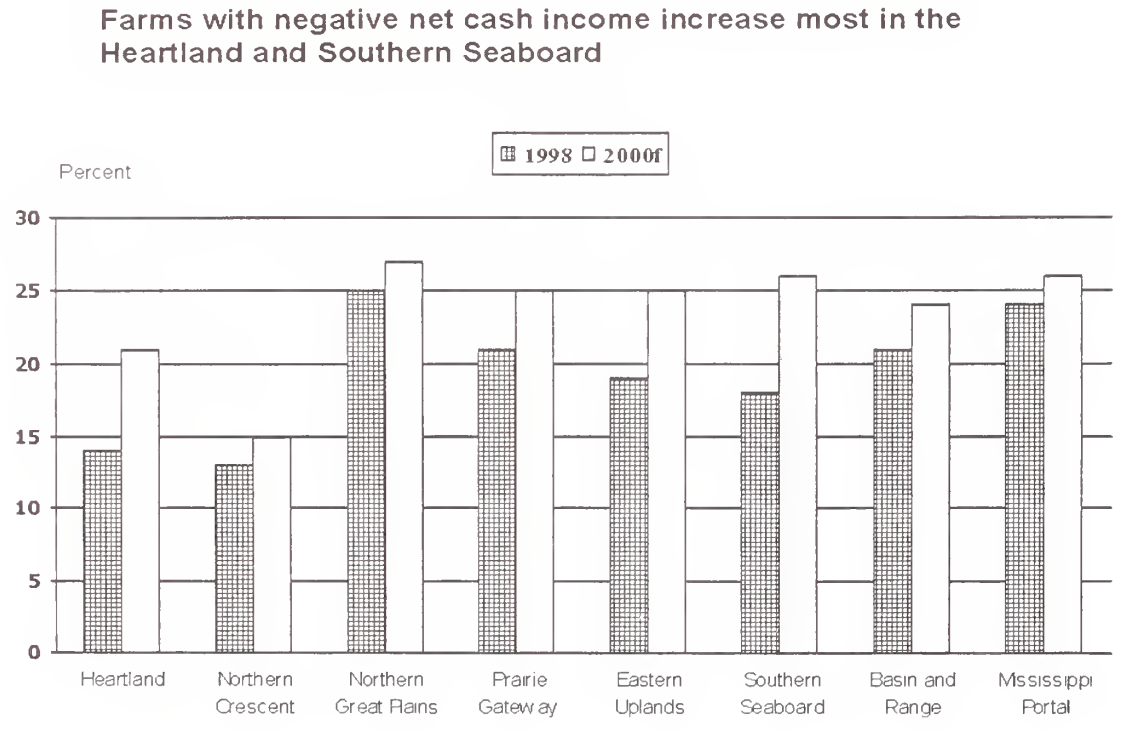


Figure 5

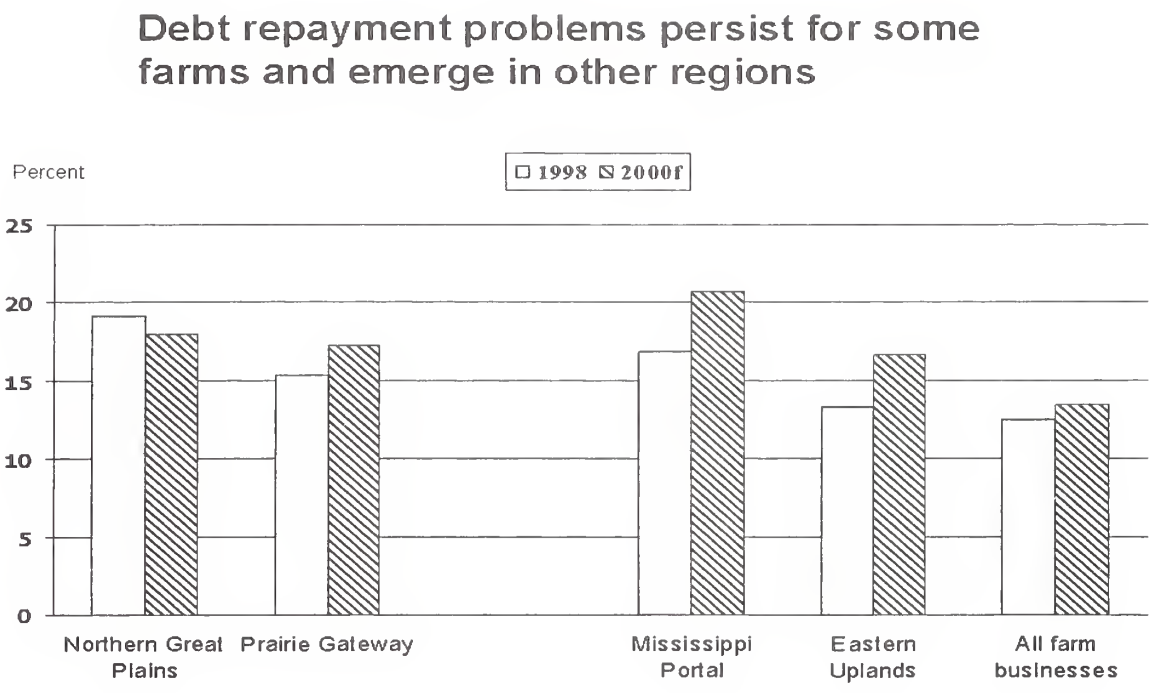


Figure 6

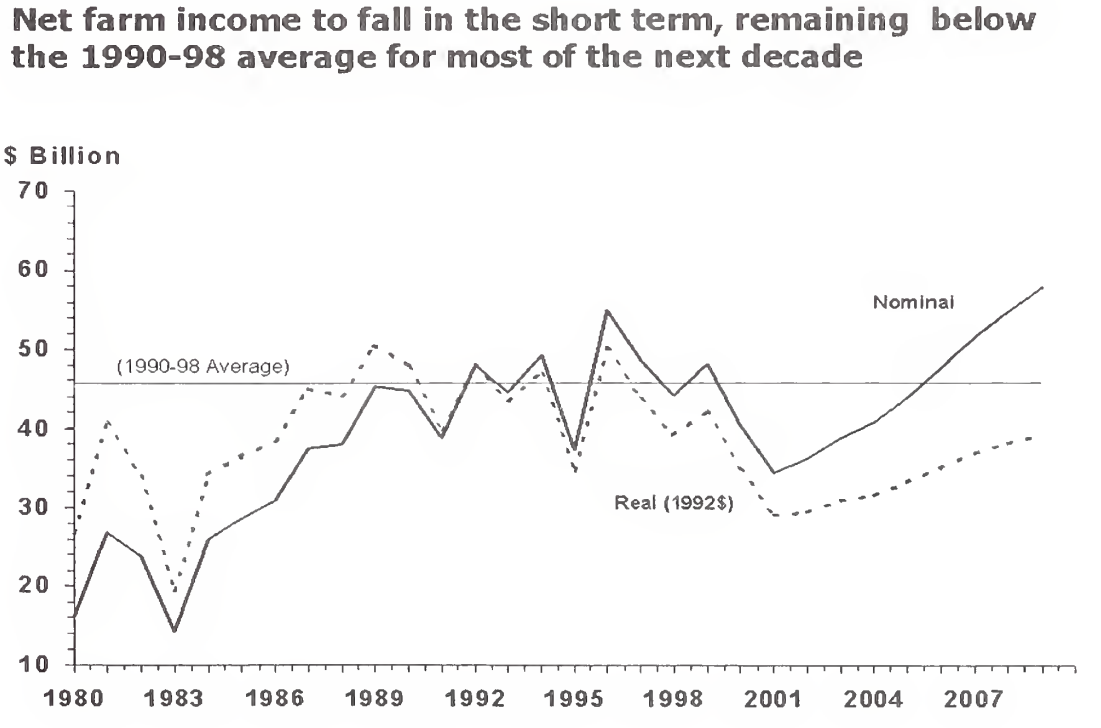
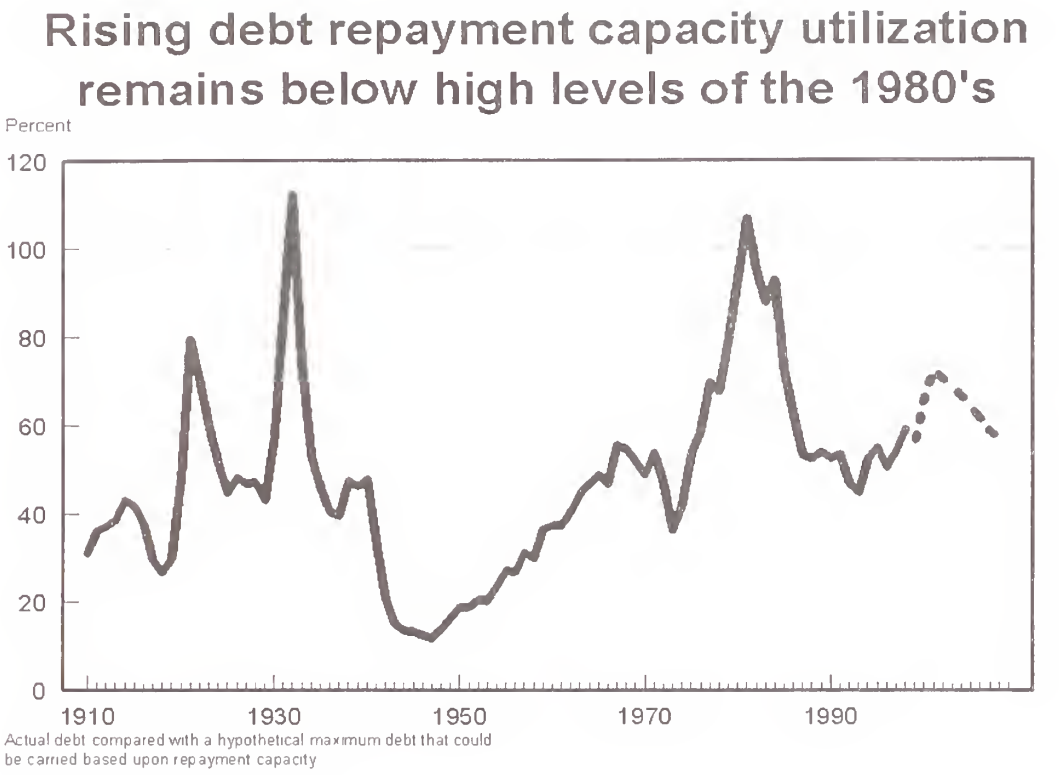


Figure 7



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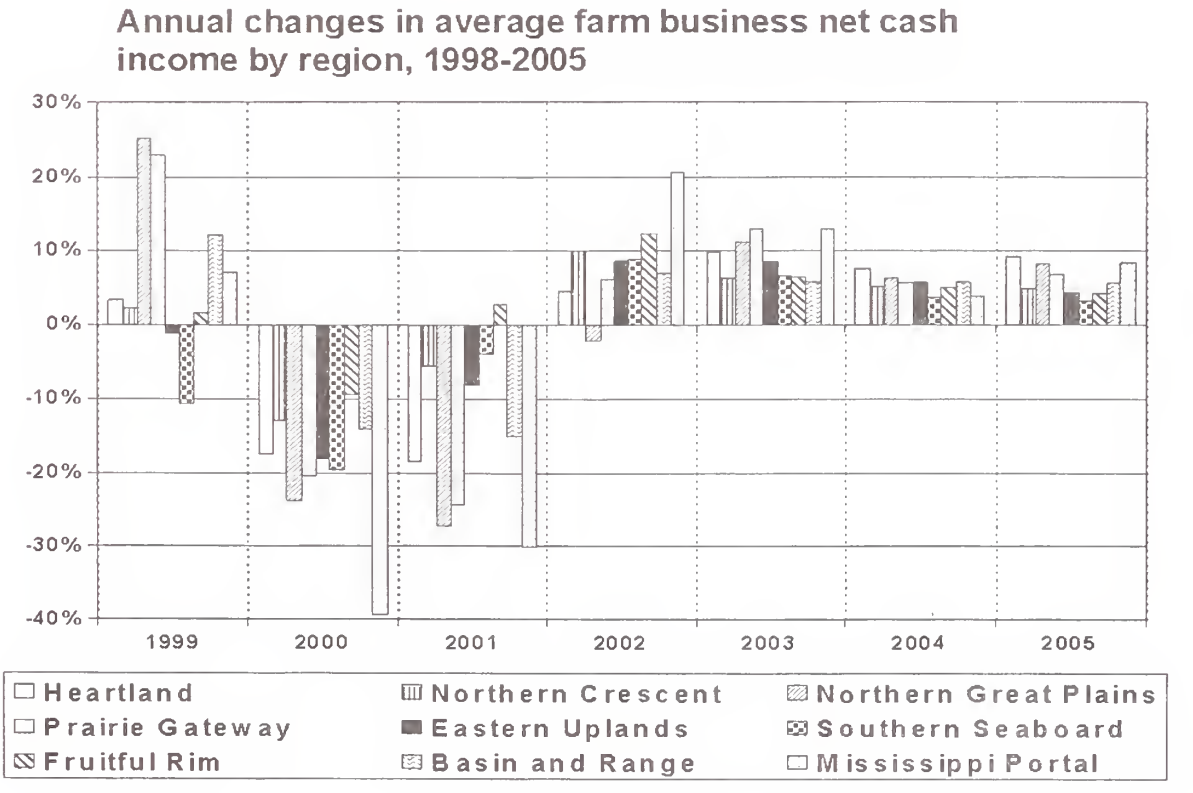

Figure 9

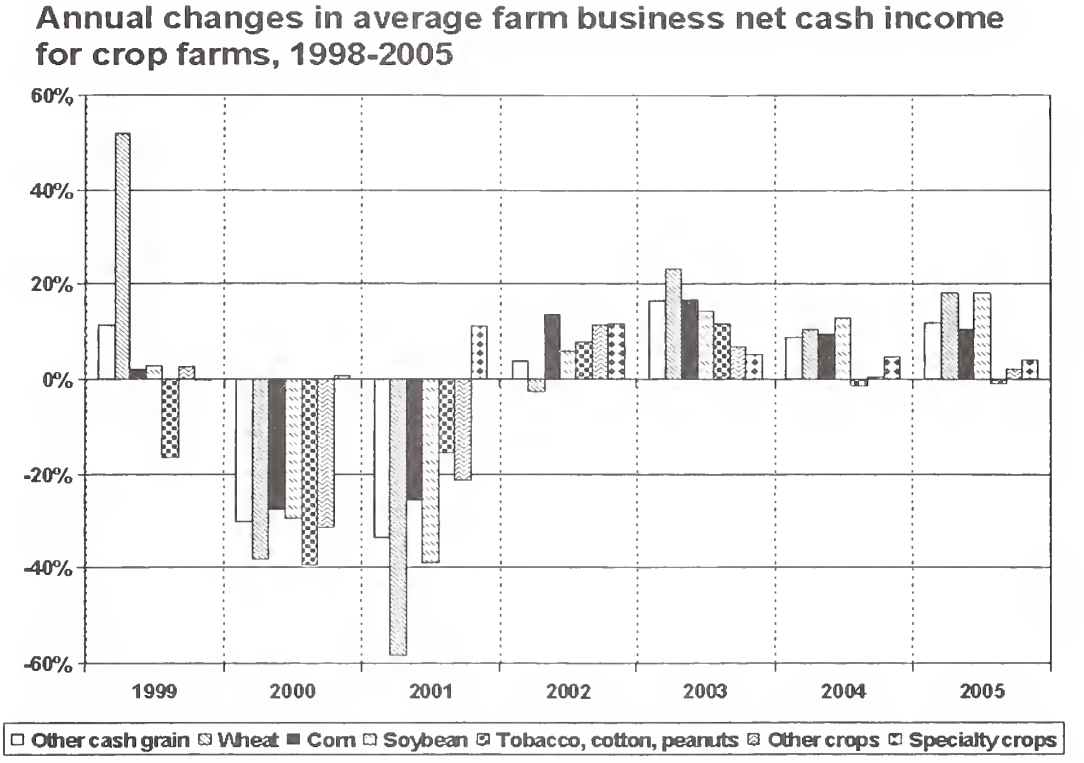

Figure 10

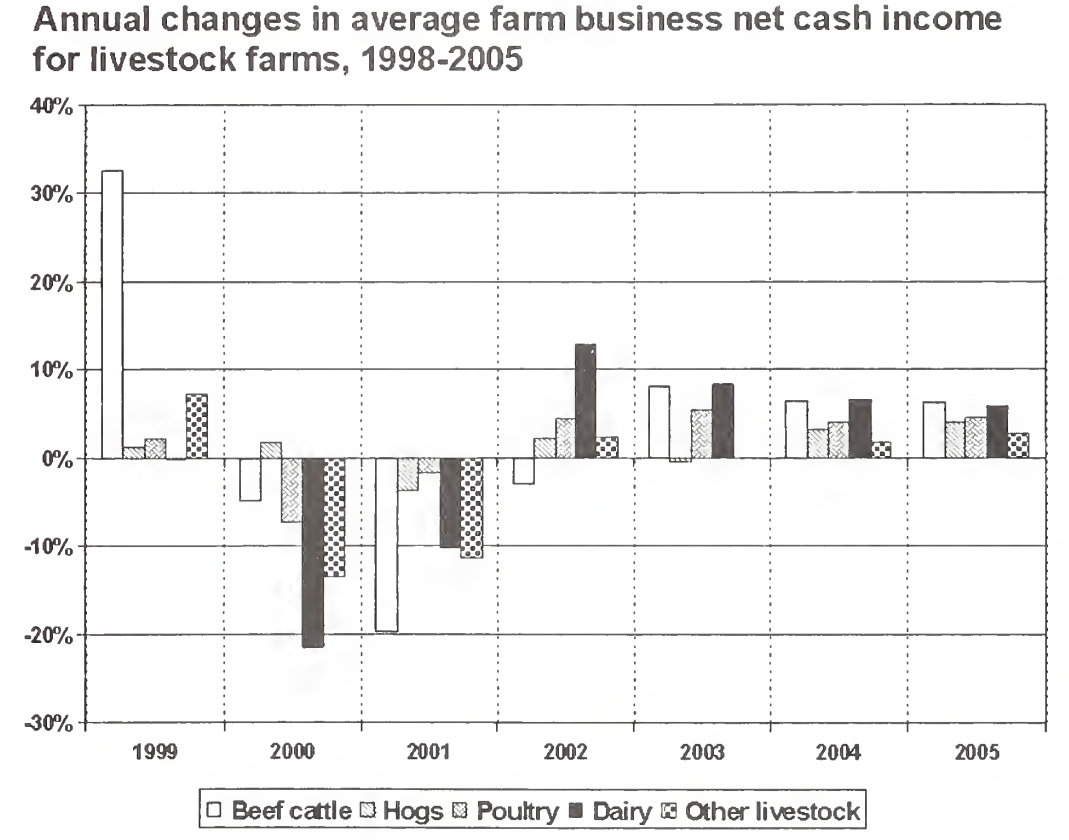

Figure 11

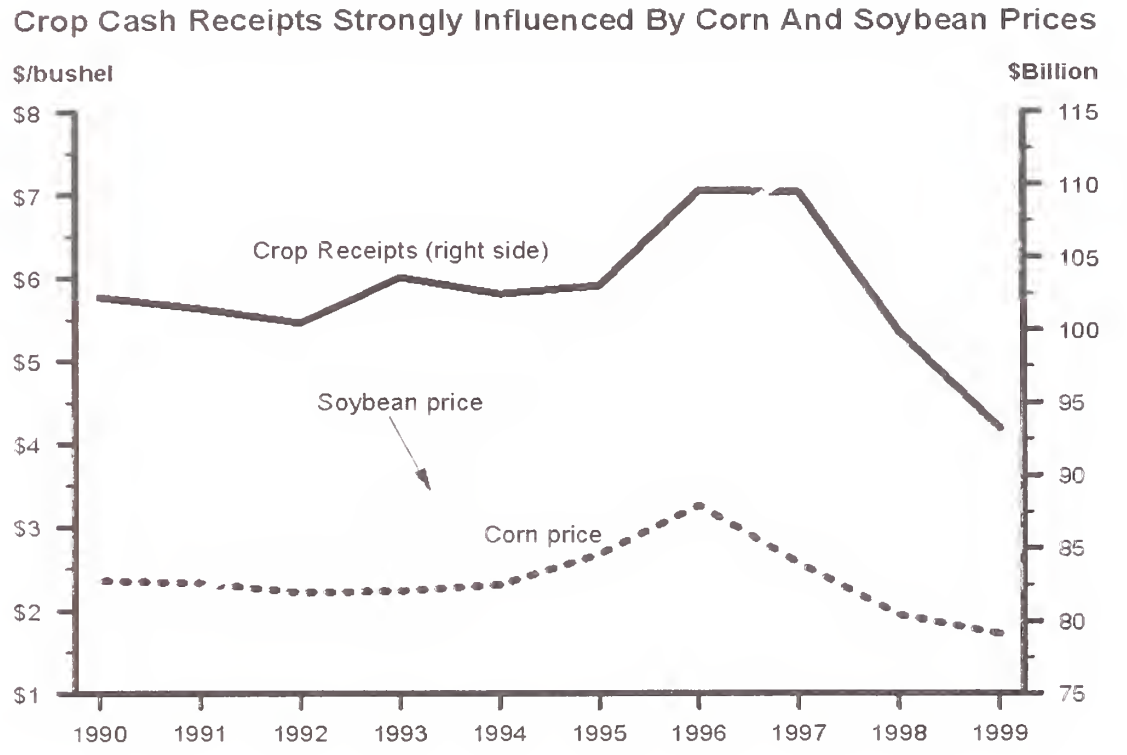

Figure 12

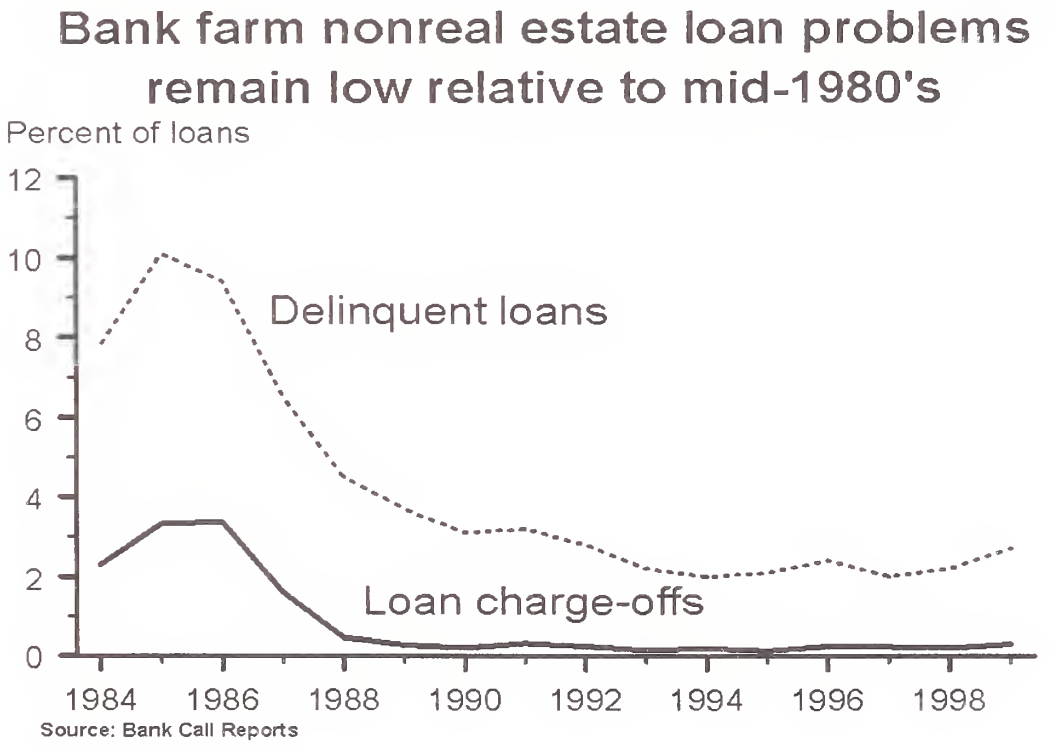

Figure 13

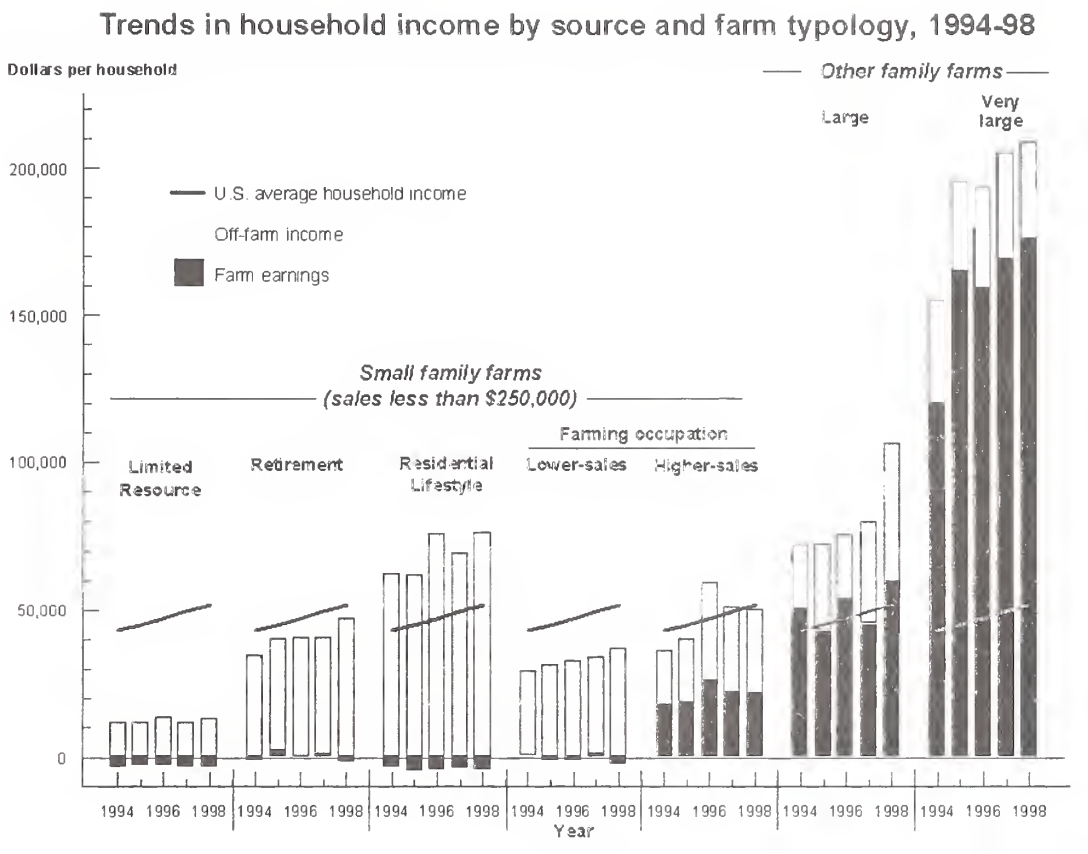

Figure 14

RURAL CREDIT MARKETS OF THE FUTURE: OBSTACLES AND OPPORTUNITIES

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This month the United States celebrates the longest economic expansion in the nation's history. In March 1991, the U.S. economy climbed out of recession and has been growing for the 107 months since—slowly at first and at an unusually rapid clip more recently. Overall, the nation's metropolitan and rural areas have shared in the good times. But on closer scrutiny, the record shows that many of the nation's rural communities have struggled to keep up—especially those located far from metropolitan centers or scenic amenities. The new patchwork of growth and decline across the rural landscape during this period of remarkable overall prosperity underscores the challenges facing rural America in the years ahead.

Rural America's challenges are both numerous and widely diverse. Many rural communities struggle to maintain their fundamental physical and social infrastructure, including roads, utilities, and educational and health services. Another new and critical infrastructure challenge for many rural communities is connecting to the new digital economy. In many rural areas, paying for these important services will require new engines of growth, beyond the traditional locomotives of agriculture and energy. Regardless of how rural America responds to these challenges, access to capital via viable credit markets will remain vitally important.

These remarks focus on the challenges facing credit markets in rural America in the years ahead—touching on both obstacles and opportunities. We tackle this task in four steps. First, we sketch the farmscape—the overall business environment in U.S. agriculture, which remains the economic anchor in about a fourth of the nation's rural counties. Second, we consider how the farmscape will affect the farm lending market of the future. Third, we broaden our sketch to span other elements of the financial services industry that will play a role in rural credit delivery. And finally, we consider how our sketch of credit delivery in rural America meshes with broader trends in the rural economy.

The Farmscape: Agriculture's Business and Risk Environment

Agriculture is a dynamic industry characterized by steady and rapid change. Three fundamental trends stand out among those determining how the industry and its lenders will conduct business in

* The views expressed here are strictly those of the authors and not necessarily those of the Federal Reserve Bank of Kansas City or the Federal Reserve System.

the years ahead: shifts in the world market, transition in U.S. farm policy, and continued evolution in agriculture's structure.

A New—and Volatile—World Market is Emerging

The global market is vitally important to U.S. agriculture, with more than a fifth of the industry's bounty destined for foreign markets each year. In recent years, however, a surge in U.S. production collided with a sharp dip in foreign sales, driving down farm commodity prices and farm incomes. The resulting slump in the U.S. farm economy again underscores the importance of foreign markets to the industry

Despite the recent dip, the global market remains one of long-term promise. Populations are growing much more rapidly in foreign markets than at home, gradually nudging up food demand. Last fall, the world added its 6 billionth inhabitant, and according to current projections, the global population will swell to 8 billion in the next two decades. By the year 2020, more than 80 percent of the world's population are expected to reside in the developing nations of Africa, Asia, and Latin America.

In addition to big and rapidly growing populations, another defining characteristic of much of the developing world is rapid income growth. During much of the past decade, income growth in these rapidly developing economies easily outpaced growth in the richer developed nations (Chart 1). To be sure, the developing world stumbled in recent years as financial turbulence quickly spread from Asia to Latin America and Russia. The global economy is now on the mend, however, and as the recovery takes root, the outlook is gradually brightening for U.S. agriculture's foreign sales. Nevertheless, the stunning ebb and flow of farm exports in recent years has again taught the industry an old lesson—the world marketplace is both vitally important and notoriously volatile. Agriculture's growing dependence on a volatile world marketplace boosts the risk the industry and its lenders must manage in the years ahead.

U.S. Farm Policy is in Transition

Even while the industry learns to manage the risks of global markets, agriculture's public safety net is being lowered, a fundamental redefinition of agriculture's business climate. With the 1996 Federal Agriculture Improvement and Reform Act (FAIR), the nation took a long stride toward a market-based farm economy that promised an eventual end to some six decades of public support and control. The new farm policy elevates the premium on sound marketing and risk management skills for the nation's farmers—and the prudent evaluation of these skills by farm lenders.

Recent hallmarks of the new farm policy are a surge in crop inventories and a plunge in crop prices. Crop inventories swelled when a run of four big harvests in a row collided with the recent export slump, and crop prices plunged. The drop in crop prices was unusually steep, however, in light of crop inventories that are still less than half as large as at the trough of the last farm financial bust in 1987 (Chart 2). The difference between then and now, however, is that much of the 1987 inventory was at least temporarily isolated from the market in various government warehousing programs. In contrast, today's entire inventory is readily available to the market, weighing directly on crop prices. Thus, the new farm policy enables crop prices to respond much

faster and farther to shifts in underlying demand and supply relationships, boosting the industry's market risks.

Despite the market-based spirit of the FAIR Act, policymakers responded vigorously to the recent weakness in farm prices and incomes, allocating about $15 billion in emergency assistance to farmers during the past two years, in addition to funds authorized under current farm law. Farm lenders indicate the additional financial aid boosted profits for many farmers and bought breathing room for many others. The financial aid also created additional uncertainty, raising the question of whether the industry's recent market-based reforms will hold. Thus, a fundamental unknown in agriculture's business planning and credit analysis is whether government payments will be available to cushion earnings dips in the years ahead.

Agriculture's Structure is Changing

One of the most profound long-standing trends in U.S. agriculture is a continued evolution of the industry's structure. Since the Second World War and before, farms in the United States have grown bigger and fewer, as farmers reaped scale economies enabled by the steady march of new production technology. The U.S. Department of Agriculture estimates the number of farms in the nation has dwindled from more than 5 ½ million a half century ago to about 2 million today.

The nation's remaining farms are a broadly diverse bunch, ranging from small, life-style farms to significant commercial enterprises. The lion's share—about 9 out of 10—are small farms with annual sales of no more than $250,000, barely achieving a commercial scale of operation. The remaining 1 in 10 farms are the productive core of the industry. Despite their relatively small number, these bigger, commercial-size farms account for two-thirds of the industry's sales volume (Chart 3).

In the last decade or so, a new twist has taken root in the industry's long-standing shift toward fewer and bigger farms. A growing number of farms are becoming the first link in carefully orchestrated production, processing, and marketing chains stretching from genetics to grocery. The welds holding the chains together are production contracts of various forms, or in some cases common ownership by vertically integrated firms. These new "supply chains" are shifting the industry's focus from commodities to products, as they aim their carefully engineered products at precisely targeted market niches. In some ways, the new supply chains are a mixed blessing for their participants. Contractual obligations limit the members' flexibility for managing their individual businesses. But the members benefit from sharing and distributing their business risks along the supply chain and limiting their exposure to sharp swings in market prices.

Agriculture's continued shift to smaller and bigger farms and the development of supply chains present new challenges for farm lenders. An almost even split in total farm debt between the big group of small farms and the much smaller group of large, commercial farms defines the polar extremes of the farm lending market. Faced with this divided market, farm lenders must give serious consideration to how they define their customers, their products, and their strategy for product delivery. At one end of the market is the large group of small farmers who support their families and offset the risks of their farming activities with off-farm income. Individual credit lines are small, and servicing these borrowers is a high-touch, high-cost, retail banking business. At the other end of the market is the much smaller group of large, commercial farmers, many of

whom are likely to be participants in supply chains. Individual credit lines are large and the average cost of credit delivery is low, but servicing these borrowers requires sophisticated financial products and delivery systems.

Overall, this sketch of the farmscape reveals a slowly growing industry, driven largely by gains in a volatile and unpredictable world market. At the same time, the industry's traditional safety net of taxpayer support is gradually being lowered—in an unpredictable way. Thus, the industry continues to evolve as its risk profile shifts. Farm businesses seek a size and structure that capture profitable scale economies, enhance product delivery systems, and build helpful risk sharing arrangements. The sharp divide emerging between life-style and commercial farm businesses suggests farm lenders must carefully define their business plans, taking into account both customers and products.

The Farm Lending Market

Amid this blend of shifting markets, risks, and structure, the farm lending market promises to be one of slow growth and stiff competition. Farm debt continues to creep up slowly. At about $173 billion today, the industry's debt load has grown about a fourth since bottoming about a decade ago. Adjusted for inflation, farm debt hit bottom in 1993 and has grown at an average rate of about 1 ½ percent a year since then.

The slow growth in farm debt notwithstanding, a small crowd of farm lenders is vigorously competing for market share (Chart 4). Insurance companies have maintained an almost steady share of the market, aimed primarily at large, high-quality, real-estate transactions. Vendor credit is becoming increasingly important in farm lending as agriculture follows other industries in pursuing new credit sources. For numerous agricultural businesses, lending began as a secondary activity designed to boost sales in the primary business, and later lending developed into a primary profit center.

The Farm Credit System—the nation's specialized, cooperative farm lender—remains an industry leader, surpassed in agricultural credit volume only by commercial banks. The FCS once owned the leading share of the farm lending market, but it lost its lead with the farm financial bust of the 1980s. With its specialization in farm lending, the FCS is more vulnerable to a protracted downturn in the farm economy than its more diversified competitors—a concern underscored by agriculture's current slump. The FCS entered the current downturn in strong financial condition, however, its balance sheet bolstered by annual earnings above $1 billion for each of the past seven years. The FCS' transformation since the 1980s is highlighted by a new streamlined structure that has whittled its bricks and mortar down from almost 900 institutions in the early 1980s to fewer than 200 today. Its streamlined structure and continued access to national money markets enable the FCS to provide credit at competitive rates. As a result, the FCS remains a formidable competitor in farm lending, regaining a few percentage points of market share in the last few years.

Commercial banks are the nation's leading provider of farm credit, the focus of much of the recent innovation in the financial services industry, and thus the topic of the remainder of these remarks. To further sharpen our focus on the role of commercial banks in rural lending, we've split commercial banks into two groups, a group we call community banks and all others. Two criteria

distinguish community banks in this analysis: Each is headquartered in a rural area (outside Standard Metropolitan Statistical Areas or SMSAs). And each holds total assets of no more than $1 billion.

Similar to the structural trend in U.S. farming, the terms consolidation and concentration describe the dynamic among the nation's commercial banks. Driven by scale economies, innovation in financial markets, and regulatory modernization, waves of mergers have shrunk the number of commercial banks from more than 14,000 in the early 1980s to fewer than 9,000 today. Slightly more than half (55 percent or about 4,800) of today's commercial banks fit our definition of community bank (Chart 5). As one might expect from their rural location, community banks tend to be relatively small institutions, with most holding less than $250 million in total assets. Given their relatively small size, community banks together hold a small slice—less than 8 percent—of the nation's total banking assets.

Their relatively small size and contribution to overall banking activity notwithstanding, community banks are vitally important sources of credit for farmers and other enterprises in rural America. Small community banks—those with less than $250 million in assets—tend to be more specialized in farm lending than their larger counterparts. On average, agricultural loans are 20 percent of loan portfolios at small community banks, double the concentration at larger community banks (Chart 6). Overall, community banks have been very profitable during the nation's current economic expansion. In 1991, the year the expansion began, the return on assets (ROA) at community banks averaged nearly 1 percent. By 1998, average ROA had climbed to about 1 ¼ percent at small community banks and more than 1 1/3 percent at larger community banks (Chart 7). The recent disparity in earnings between small and large community banks agrees with emerging evidence on economies of scale in banking, which many analysts believe favor banks holding more than $300 million in assets.

The Shifting Financial Landscape: A Revolution in Banking

Community banks are adjusting not only to rapid change in agriculture, but also to a veritable revolution in their own industry. This revolution is sparked by bold new legislation governing the financial industry and by the onward march of technology, which in its own way is redefining finance—and the geography of banking.

New Laws Redraw the Banking Landscape

After years of negotiations and a number of failed attempts, Congress passed and the president signed a comprehensive bill overhauling the nation's core laws governing the banking industry and financial services more generally. The Financial Services Modernization Act of 1999 (FSMA) aimed to provide a new regulatory framework for an industry that had outgrown the rigid confines of banking laws written during the Great Depression.

Extremely comprehensive in its reach, the law will have far-reaching implications for community banks. While many aspects of the bill will affect them, three provisions are particularly important:

the repeal of Glass-Steagall, the creation of new powers for banks, and new access to loanable funds.

A paramount provision of the FSMA was to repeal and replace the Glass-Steagall Act. Passed during the 1930s, that act created a wall of separation between the banking and securities industries. Banks were permitted to take deposits and make loans, but were not allowed to engage in brokering or underwriting securities. They could also not engage in insurance agency or underwriting activities. Over time, these legal restrictions proved more and more onerous as consumers revealed their preferences for one-stop shopping for financial services. In one bold stroke, the FSMA tears down these 60-year-old walls separating banks from the securities and insurance businesses.

A primary vehicle by which banks can enter the previously forbidden lines of business is through a financial holding company. In some respects, a financial holding company can be thought of as expanding the powers of a bank holding company. To form a financial holding company, a bank holding capital must meet three tests: it must be well managed, well capitalized, and score a satisfactory or better rating on its compliance with the Community Reinvestment Act. Once a financial holding company is formed, the company can engage in a very broad menu of financial activities. These include securities underwriting, merchant banking, insurance agency and underwriting, and a long list of activities that can be classified as "financial in nature."

Apart from a financial holding company, commercial banks are given much broader powers themselves. Under the FMSA, all commercial banks can now have an insurance agency (the power to underwrite insurance was given only to financial holding companies). Previously, only commercial banks in towns with population under 5,000 were allowed to own insurance agencies. Commercial banks were also given the authority to underwrite securities. One important aspect of this new power for rural community banks is that they can now underwrite municipal revenue bonds, an important source of funding for rural infrastructure projects. Finally, the FSMA left open the possibility that community banks might engage in merchant banking—making investment positions in local companies. There is a five-year moratorium on merchant banking by banks, after which time financial regulators are to review the matter again. However, in the interim, a commercial bank presumably could be a merchant banker if it formed a financial holding company.

Another way of looking at the new world of community banking is reviewing what commercial banks cannot do. They cannot underwrite insurance, invest in real estate, develop real estate, or engage in merchant banking for at least the next five years.

Finally, the FSMA substantially broadened community banks' access to loanable funds. Any commercial bank with less than $500 million in assets can now gain access to Federal Home Loan Bank (FHLB) advances without meeting a Qualified Thrift Lender test. Community banks already had access to FHLB funds, but the funds essentially had to fund rural housing loans. The FSMA sweeps away that requirement. Now, community banks can borrow from the FHLB and turn around and fund housing, small business, small farm, or agribusiness loans. They can take long-term advances and use them for the same purposes.

In short, the FSMA significantly expands the availability of loanable funds to community banks, one of their biggest business concerns. While it is too soon to know the extent to which banks will use this channel, it seems likely that many banks will see the FHLB as an important means of underwriting future loan growth.

Technology Makes a Mark on Banking

While a new watershed in banking legislation obviously will redraw the future for community banks, so will the new digital era. Like all other businesses, community banks are adapting to e-commerce. The transition is especially difficult for community banks, however, because their franchise is especially tied to a particular geographic place.

Internet banking opens banks to a new world of customers, but it also provides new opportunities to their existing customers. Whether the net effect is positive or negative is open to question. At this point, relatively few community banks have aggressively marketed themselves on the Internet, in part because the human resource and other costs of building a Web presence are considerable. According to the FDIC, only 160 banks with assets less than $100 million offered transactional banking via the Internet as of October 31, 1999. That was less than 3 percent of all banks that size.

In the end, new technologies will no doubt make community banks more efficient overall. Yet most community banks regard relationship lending as a core strength. Whether sturdy lending relationships can be built online remains to be seen. Many community banks may dabble online but continue to direct their core business strategies at local businesses.

In sum, commercial banks are entering a whole new financial landscape. The FSMA gives bankers a broad new set of financial tools. It also gives them more funds to tap at the FHLB. And while technology also opens a new world of opportunities, most community banks still consider themselves tied to their communities. Thus, the performance of the rural economy still remains the dominant factor in the community banking outlook.

The Changing Rural Landscape

An uneven rural economy creates big challenges for rural community banks. Banks located in booming areas are thriving, while banks in stagnant rural regions struggle to grow and remain profitable. This economic tale of two rural Americas gives every indication of continuing in the period ahead.

An uneven rural economy

One useful gauge of the rural economy is to compare its performance with that of metropolitan areas during the nation's record-setting economic boom. This month, the nation's expansion will set a new longevity record at 107 months. Since the expansion began in March 1991, the nation's job rolls have jumped about a sixth—nearly 20 million jobs. Rural job gains have been about a half percentage point less at 16.2 percent.

Within rural America, however, job gains have been very uneven. One way to assess the uniformity of rural growth is to compare the gains in rural areas next to metro areas (which often become the next round of suburbs) with those in more remote rural areas. Remote rural places posted job gains more than a full percentage point less than the nation's cities, whereas rural areas next to metro areas essentially kept pace with the cities (Chart 8).

Comparing rural job gains in this expansion across regions gives an even clearer picture of uneven rural growth. The fastest rural job growth—by a wide margin—has been in the Intermountain West, where rural jobs have jumped 28 percent during the expansion (Chart 9). The rapid gains were driven by a strong influx of population and businesses as millions of new residents sought scenic lifestyles near the mountains. Job gains in the central portion of the nation, meanwhile, have been much more moderate, and lag well behind the nation as a whole.

Farming areas have been among the weakest in adding jobs in this expansion. Farm-dependent rural counties have only managed a gain of 13.4 percent in their job rolls during the expansion, nearly 3.5 percentage points less than in the nation's cities. (There are 556 rural counties where production agriculture is the leading source of income, and these counties are heavily concentrated in the Plains States.) Only mining-dependent counties fared worse, with job growth half as fast as in farming counties.

Lagging job formation in farming counties underscores the economic dilemma many such counties face. Technological change is the steady companion of the U.S. farm economy; each year farmers grow more with fewer inputs. While beneficial to the U.S. economy overall, impressive gains in farm productivity do not by themselves spark strong job growth on Main Street. Thus, many farming communities in the nation's Heartland continue to search for economic engines that can broaden and strengthen their local economy. For many farm communities, the next ten years may well be a defining period.

Challenges in the Rural Economic Outlook

The unevenness of the rural economy presents many communities with serious challenges in the period. Five challenges appear particularly important: closing the digital divide, growing new entrepreneurs, leveraging the new agriculture, sustaining the rural environment, and boosting human capital.

Closing the digital divide will be an important challenge for helping rural America participate more fully in the nation's economic gains. Digital technologies offer a whole new paradigm—knowledge-based industries located anywhere. Until now, however, such industries have mostly chosen not to locate in rural America. There are well-publicized exceptions, to be sure. It is possible to be a highly successful software or computer company on the prairie. Gateway 2000 is a visible example (still, it recently moved its headquarters from South Dakota to San Diego). But exceptions do not make a trend. The high-tech trend is decidedly metropolitan, with powerful evidence in the Silicon Valley.

Can rural communities capture more growth in the digital economy in the 21st century? This may be the biggest wild card in rural America's future. Digital technology clearly has the potential to open up bold new economic vistas in rural places. But it will not be easily done.

Energizing entrepreneurs. Entrepreneurs are the yeast in the economy. A tiny part of the overall recipe, they are the essential ingredient that makes the economy rise. Many now wonder if rural America has enough yeast to rise to the fullest. While comprehensive studies have not been done, many observers believe that rural entrepreneurs are comparatively scarce. To a large degree, rural entrepreneurs have become today's "homesteaders." They explore new frontiers, pursuing their fortunes in new endeavors. But beyond this sense of mission, which is common to all business start-ups, rural entrepreneurs tend to be solitary, far from the abundant support systems of the metroplex.

Access to capital provides one window on the rural entrepreneur's world. A new business in suburbia can obtain capital from a legion of sources: the local bank, the regional bank, the national bank, the finance company, the venture capital firm, the local network of angel investors, mezzanine finance companies. The rural entrepreneur, on the other hand, generally has one source: the community bank. Ironically, even local farmers have more capital choices (which include the Farm Credit System, insurance companies, the Farm Service Agency, and foreign banks, like Rabobank).

Capital, of course, is only one piece of the puzzle a new rural business must put together. Understanding input and product markets, assembling a business plan, putting together a management team, hiring workers, finding a location, ironing out logistics are all pieces of a process that must flow seamlessly. Many of these pieces are simply more difficult to pull off from a rural location. Moreover, a support group to help navigate the process is far more limited.

Leveraging the New Agriculture. One of the heralds of the 21st century is a New Agriculture, a dramatic shift to producing specialized products with supply chains. While much work remains to realize its full potential, the New Agriculture poses a special set of challenges for rural America, namely a redrawing of where farming and processing take place.

Supply chains bring a whole new geography to U.S. agriculture. Historically, the economic gains from agricultural science have been widely dispersed. Supply chains, however, may be based on geographic concentration, not dispersion. With tightly coordinated production and processing, activity tends to move to hubs. In that sense, the poultry industry may be prelude to the future. The poultry industry is now characterized by a handful of supply chains concentrated mostly in the South, the mid-Atlantic, and the upper Midwest. What may be even more striking is that poultry processing and production have concentrated in relatively few rural places within these regions.

While communities with supply chain hubs clearly stand to benefit, relatively few communities may actually succeed in being a hub. How do communities position themselves to capture an emerging hub? Successful communities will offer a sizable work force and a significant number of growers whose production can be coordinated and tuned to the needs of the end user. Another issue will be the number of new products moving into commercial production. The more new products become available, the more rural communities will benefit. This speaks to the overall amount being spent on research and development—by both the private and public sectors.

Boosting human capital. A transcending challenge will be boosting rural America's human capital. Building new futures for rural America depends more than anything on the people who will make

it happen. Studies show that rural America has a smaller share of people with college training than metropolitan areas. This brain drain simply makes it that much harder to do a whole host of things in rural America—stoking entrepreneurship and attracting high-skill jobs to name two. Slowing that drain will depend on creating more viable economic opportunities and enhancing rural quality of life.

The brain drain is a big issue, but not the only one. Lifting the skills of rural workers and building leadership capacity in rural communities will also be critical. Higher worker skills will be a major plank in building a brighter rural economic future. Rural wages appear to be falling behind those in metro areas. In the 1990s, for instance, rural wages have risen less than half as fast as metro wages.

Lifting wages will require higher skills and more rural entrepreneurs. This presents something of a "chicken and egg" problem. Which comes first, better firms or better workers? The answer, of course, is *yes*. It takes both. Rural workers will be a crucial target for new lifelong learning initiatives. Rural people not only need access to the information superhighway; they also need to be adept in traveling it.

Finally, rural communities will need more than high-skill workers and a new generation of entrepreneurs. They will need strong local leaders. As never before, firms have myriad choices where they locate. Those choices now cross county lines, city limits, state lines, and national borders. Rural communities have trouble competing in this race due to their small scale. Thus, training effective rural leaders will be a key to helping rural communities remain viable in the new century.

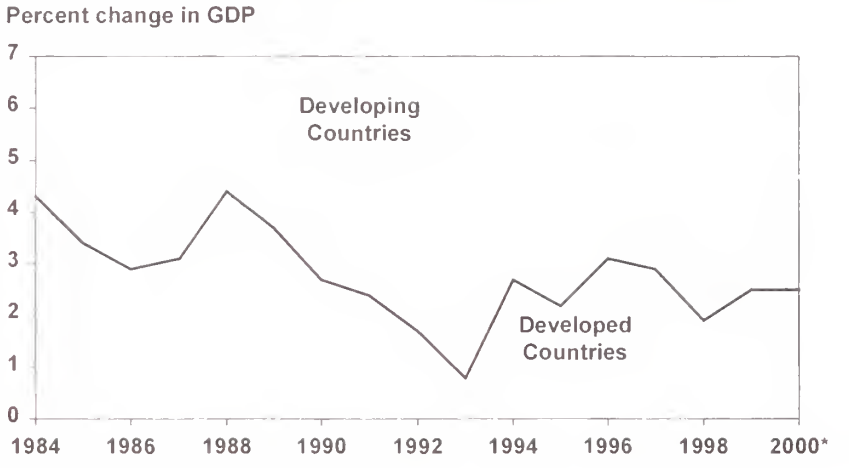
The rural banking outlook

Given these challenges, what is the outlook for the rural economy? Rural America will probably continue to perform quite well overall, but there seems to be no end in sight to the uneven pattern of growth. Scenic areas like the Intermountain West will continue to boom due to their lifestyle amenities. Farming and more remote areas, meanwhile, will be in a serious search for new economic engines. Many of these new economic opportunities will probably lead away from agriculture.

Community bank loan growth in the 1990s probably provides a reasonable window on the future. Total loans grew more than 5 percent a year in the current economic expansion (Chart 10), with consumer and agricultural loans growing faster than commercial loans. That pattern may be reversed in the coming decade. Much of the growth in farm loans came at the expense of the Farm Credit System; a period with more stable market shares may lie ahead. Meanwhile, commercial lending may grow somewhat faster as banks search for new sources of growth—for themselves and their communities.

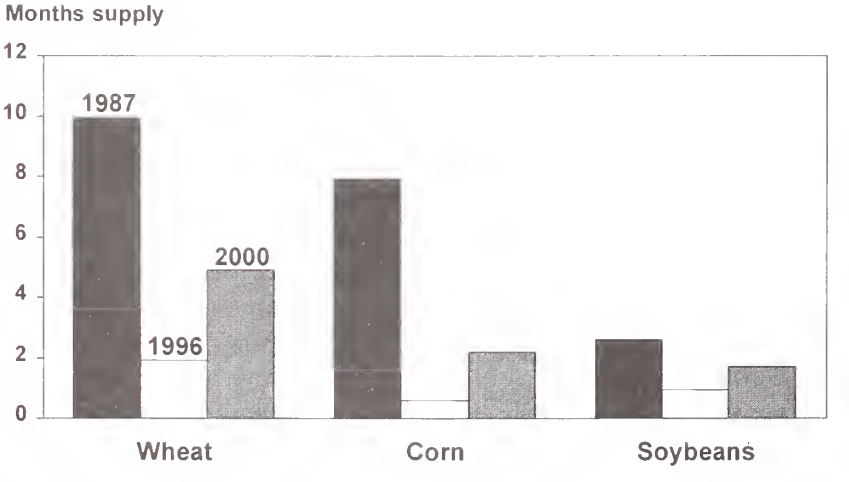
Community banks will almost certainly remain the dominant rural business lenders in the period ahead, especially given the new tools they received in the FSMA. And while technology will clearly change the banking business, most rural community banks will remain heavily tied to their communities through a legacy of business relationships. The simple relationship still holds: as go their communities, so go community banks.

Chart 1: World Economic Growth



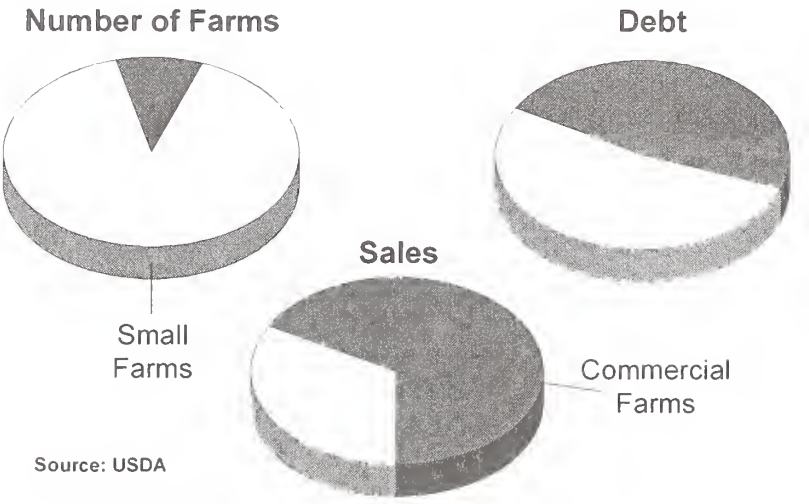
*Forecast
Source: USDA

Chart 2: U.S. Crop Inventories



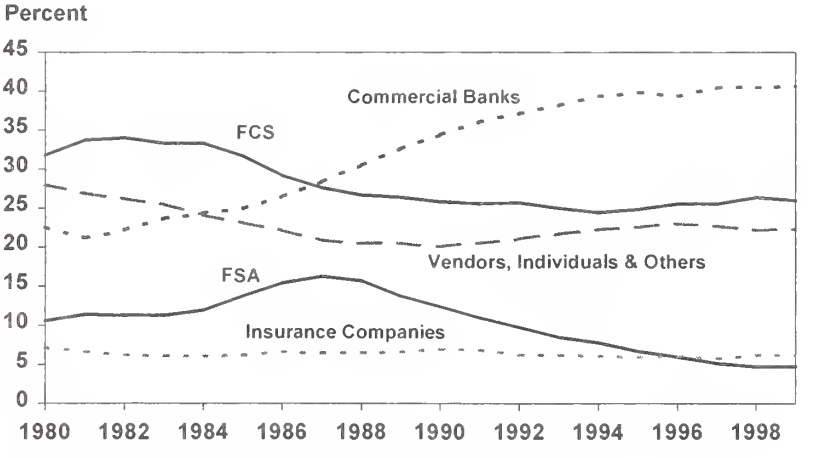
Source: USDA

Chart 3: U.S. Farm Structure
1998



Source: USDA

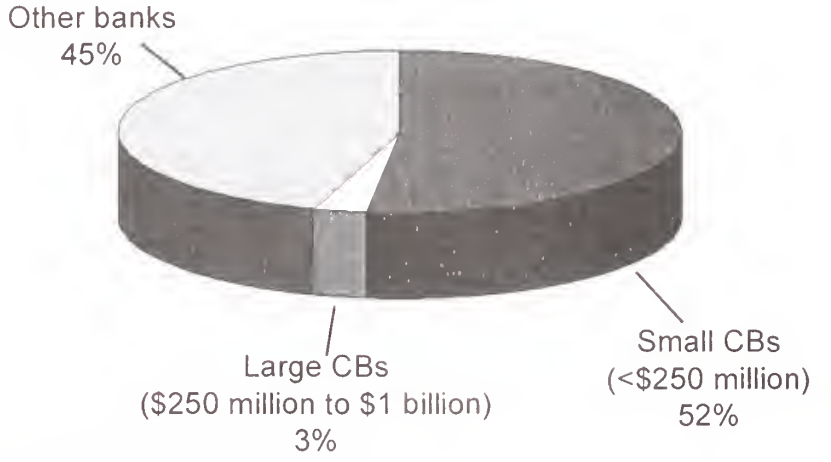
Chart 4:
Market Share of U.S. Farm Debt



Source: USDA

Chart 5:
Community Bank Share of All Banks

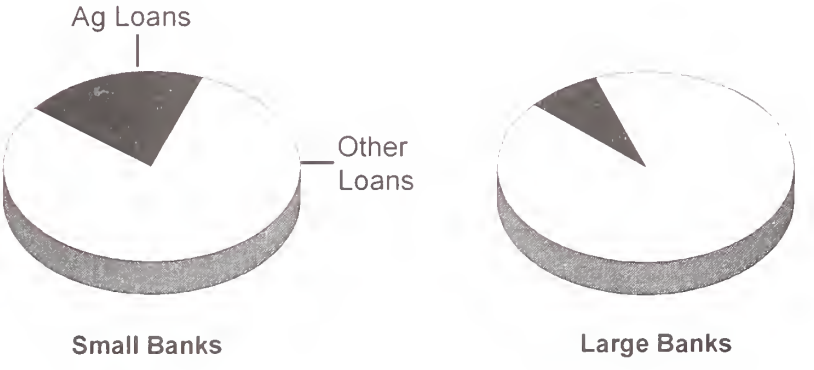
1999



Source: Federal Reserve System

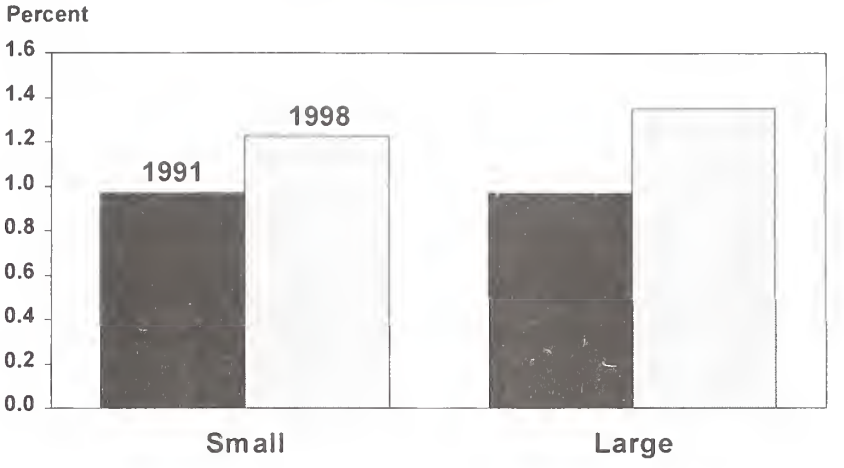
Chart 6:
Community Bank Loan Concentration

1999



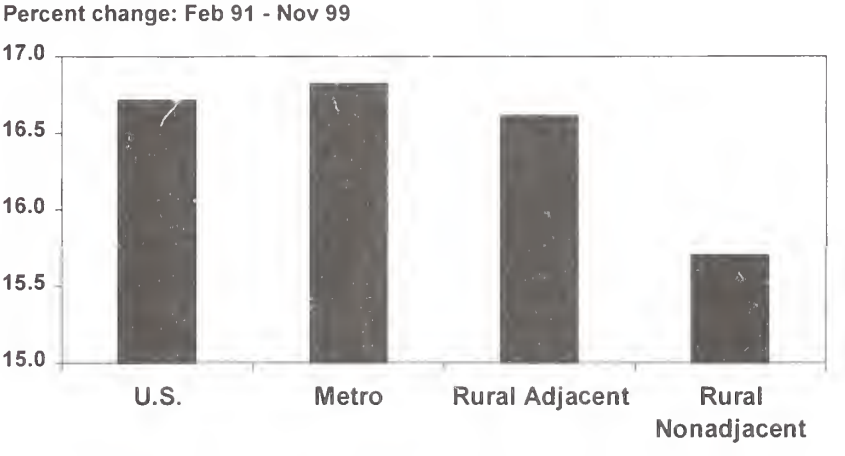
Source: Federal Reserve System

Chart 7: Return on Assets
Community Banks



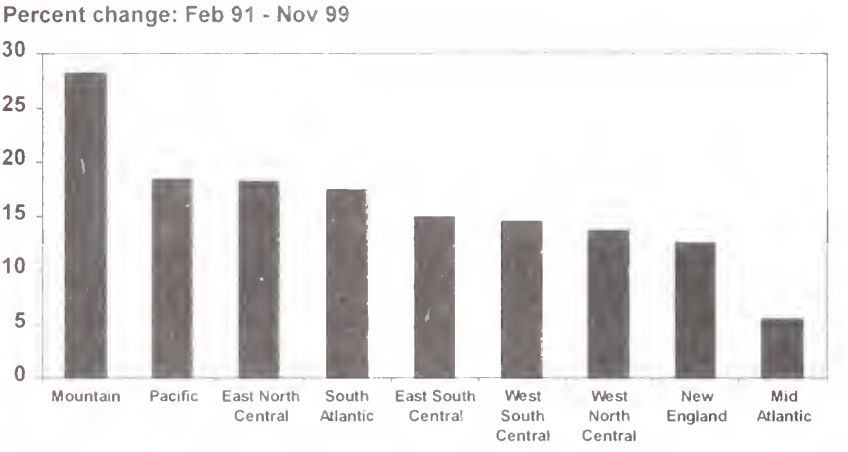
Source: Federal Reserve System

Chart 8: Total Job Growth in the Expansion: Remote counties grow more slowly



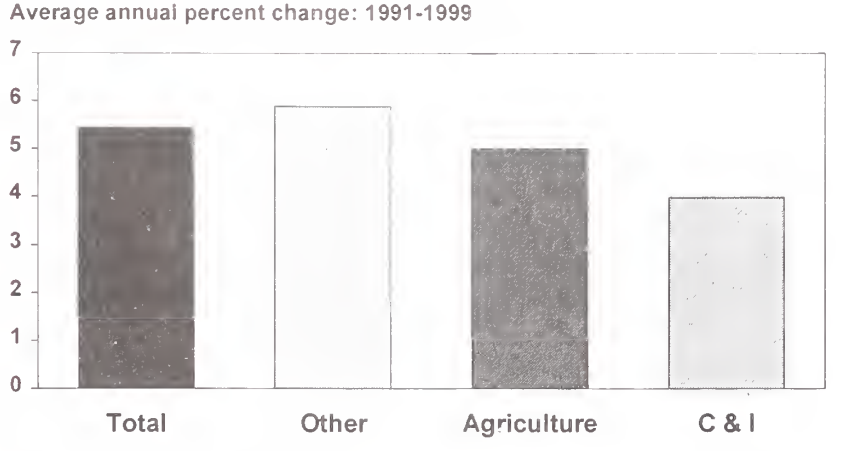
Source: Bureau of Labor Statistics and Economic Research Service

Chart 9: Total Nonmetro Job Growth in the Expansion: Mountain States in the Lead



Source: Bureau of Labor Statistics and Economic Research Service

Chart 10: How fast will community bank loan market grow?



Source: Federal Reserve System

WAR AND PEACE IN THE RURAL WEST

Priscilla Salant
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The West's rapidly changing economy and growing population are bringing intense pressures on leaders at all levels of governance and decision making. From city council members to state legislators to federal land managers, the region's citizens and decision makers are coping with these changes and adapting to what many people call the New West.

One window into the New West is Headwaters News, an on-line news service for the Rocky Mountain West (www.headwatersnews.org). Every weekday morning, the Headwaters editor summarizes and links to the best regional stories from about 35 on-line newspapers around the Rockies. On any given day, Headwaters includes news and commentary on community, environment, the economy, and politics. It provides a unique opportunity to watch the ebb and flow of different issues, variation between urban and rural places, and changes in opinions.

When asked to speak about policies and programs that matter most to rural Westerners, I could think of no better starting point than Headwaters News. The following is a synthesis of stories I selected from Headwaters since January 1, 2000 They are about change, conflict, and occasionally, about peace.

* * * * *

Rural towns and small cities across the West are struggling with population and economic growth. Growth management, affordable housing, and farmland preservation are important policy issues for state and local policy makers.

Huge development divides Arizona town. El Mirage, Ariz., is a village near Phoenix with a current population of about 5,700 and a huge development that will soon push the number of residents to about 40,000. The conflict has prompted an attempt to recall the mayor and five of seven council members. *Arizona Daily Star*; Jan. 10

Residents, experts call Bozeman growth plans shortsighted. The Bozeman, Mont., City Council is on the verge of banning big-box stores and enacting a slate of Smart Growth initiatives, but the initial public reaction is to slow down and reconsider. *Bozeman Chronicle*; Feb. 1

Judge slaps upscale community's exclusive plan. When a judge ordered Bluffdale, Utah, to write a plan that incorporates affordable housing, city planners relegated those lesser homes to an area surrounded by gravel pits and the Utah state prison. Back in court, the judge says the plan is arbitrary, capricious and illegal, and they knew better. *Salt Lake Tribune*; Feb. 8

Utah farmland disappearing fast. The last dairy farm in Salt Lake County moved out last week, and an agricultural extension specialist says in as little as two decades, there'll be no more farms in Utah County to the south, either. *Deseret News*; Jan. 5

Behind the population growth are dramatic structural changes in the economy. While employment in the rural West's traditional industries is certainly declining, it's too simple to say these industries are dying. Instead, they are under pressure to add value, find new markets, and become more environmentally sustainable.

In agriculture:

Eastern Washington bankruptcies finally drop. The number of bankruptcies filed in eastern Washington dropped last year for the first time since 1994, though the number of filings on farms doubled. *Spokesman-Review*; Jan. 28

Giant grass seed company withers. The Nevada company AgriBioTech Inc., one of the largest grass seed companies in the world, has filed for Chapter 11 bankruptcy, leaving Idaho growers unpaid and threatening an already weak farm economy. *Idaho Statesman*; Jan. 27

Cereal exec advises wheat farmers to find a niche. Farmers suffer from a "disconnect" between the price of their commodities and the price of retail goods, says a General Mills executive. To survive chronically depressed markets, they must grow specialized crops aimed at specific products -- ingredients rather than commodities, he said. *Billings Gazette*; Feb. 3

Irrigation poisoning Colorado streams with selenium. Irrigation on Colorado's west slope is carrying toxic selenium into the region's rivers, in some cases, raising selenium levels to five times the state's allowable threshold. Dissolved selenium is toxic to birds and fish, and state officials are talking about controls. *Denver Post*; Jan. 14

Farm groups see Santa Fe's water purchase as threatening precedent. Irrigators have filed protests against Santa Fe County's plan to buy the water rights of a farm near the Colorado border and transfer them south, saying it's the first step in siphoning off northern New Mexico's agricultural water for the state's thirsty cities. *Albuquerque Journal*; Jan. 4

In forestry:

Logging volumes still going down in Idaho. Timber harvest on national forests in Idaho continued to plummet last year: down 52 percent on the Clearwater National Forest and 37 percent on the Nez Perce. *Idaho Falls Post-Register (AP)*; Jan. 9

Idaho mills produce more. More and better technology meant that Idaho generated more income from wood products last year, though employment was down slightly. *Spokesman-Review*; Jan. 10

Plum Creek to expand Montana plant. Plum Creek Timber Co. has announced it will sink $69 million into an expansion of its fiberboard plant in Columbia Falls, Mont. The plant presses wood shavings and sawdust into a smooth-faced board. The expansion will add about 20 jobs. *Kalispell Daily* Inter Lake; Jan. 12

Plum Creek moves toward greener forestry. Plum Creek Timber Co. will require all its contractors to use environmentally friendly techniques and will soon release an independent audit of its logging practices, both geared toward meeting market pressure for more sustainable forestry. *Missoulian*; Jan. 9

In mining:

Colorado mine lays off 110. Colorado's most modern mine and the world's largest molybdenum producer is laying off 110 workers, about 20 percent of its employees, due to falling prices and demand. *Denver Post*; Jan. 5

Wyoming coal mines break record -- again. For the second year in a row, Wyoming coal mines have set production records. Clean Air Act regulations have pushed the demand for the state's low-sulfur coal. *Billings Gazette*; Jan. 12

Groups file to block Wyoming oil leases. Seven environmental groups say they'll file suit to keep the Forest Service from issuing oil and gas leases on 2,500 acres north of Dubois, Wyo., to protect grizzly bear habitat. *Billings Gazette*; Jan. 28

Washington board jerks proposed gold mine's permits. Washington officials have overturned two permits necessary for construction of the first large, open pit gold mine in the state. The on-again, off-again project in the Okanogan Valley has been assailed by environmentalists, local irrigators, and the Clinton administration. *Spokesman-Review*; Jan. 20

State and federal policy makers are frequently asked to help mitigate the impacts of structural change in historically important rural industries, but there are no easy solutions.

Montana farmers plead for reforms. A Montana farmer led the appeals to the Democratic Policy Committee to reform crop insurance programs, create a price "safety net," curb corporate takeovers and ease farmers' prevailing "desperation and hopelessness." *Billings Gazette*; Feb. 3

"Aggie bonds" could help states help farmers. Montana and other Western states should consider so-called aggie bonds, sold by the state to generate capital to loan to young farmers. It's a popular method in the Midwest to encourage new farmers and slow the demise of family farms. *Bozeman Chronicle*; Jan. 12

Forest Service won't alter policy to save mill. National forest officials say they're sorry an innovative lumber mill in northwestern Montana will close in July for lack of logs, but they won't shift forest management away from their emphasis on restorative projects. *Kalispell Daily* Inter Lake; Jan. 13

Washington legislators push governor on gold mine. Legislators from northeast Washington want the governor's help to secure water rights for the state's first open-pit gold mine. A state board rejected water rights for Battle Mountain Gold Co.'s Crown Jewel Mine near Chesaw and lawmakers want a state agency to join the appeal. *Spokesman-Review*; Feb. 8

As ERS research has shown, population growth in the rural West is strongly related to amenities. Hence, it comes as no surprise that a big part of the new economy in the rural West depends on capturing value from amenities, primarily through markets for recreation, environmental restoration and the attraction of small town life.

Officials want more cash from pristine Idaho park. Idaho officials say Harriman State Park, the state's first and one of its most pristine, must start paying more of its costs, and they're talking about lodges, motels, a visitors' center and other development that critics call sacrilege. *Idaho Falls Post-Register*; Jan. 5

Wolves draw dollars to Yellowstone-area economy. Yellowstone wolves have become a key component of the local economy. Seventeen companies have permits for wildlife and photography tours, and each of them sees wolves as a draw. *Billings Gazette*; Jan. 17

Recreational trail along historic route to get a key link. Crews this summer will complete restoration of an old railroad tunnel and a key piece of a new recreational trail on the Idaho-Montana border. The Route of the Hiawatha trail follows the bed of the famous rail line, and is a draw for hikers, bikers and tourists in north Idaho and western Montana. *Spokesman-Review*; Jan. 28

Nature Conservancy buys Montana prairie ranch. The Nature Conservancy and a Billings family have bought a 60,000-care ranch near Malta, Mont., to preserve its extensive native grassland. *Billings Gazette*; Jan. 19

The future is in fixing the past. The next chapter of the West's history will be less about conquering the wilderness and more about repairing the damage from past arrogance. The Salton Sea in California is a good example, says this essay. *High Country News*; Jan. 6

Wyoming town investing in recovery. Evanston, Wyo., has twice survived boom and bust in recent decades, once in the 1970s when the railroad drastically curtailed services, and again in the 1980s, when the bottom dropped out of the oil market. Now, store fronts are filling up, a few industries have moved in, and the town is investing $12 million to restore an old Union Pacific roundhouse as a community center. *Salt Lake Tribune*; Jan. 17

The amenity-based economy does not come without costs, however. Local policy makers struggle over how to manage the change from old to new.

Smalltown, Wyoming, uncomfortable with attention. The International Rocky Mountain Stage Stop Sled Dog Race is the biggest this side of Alaska, and it brings racers, spectators and attention to Pinedale, Wyo. Pinedale residents have mixed feelings about that. *New York Times*; Feb. 2

Lewis and Clark buffs may inundate Montana. The Lewis and Clark bicentennial could draw as many as 18.7 million visitors a year to Montana during 2005 and 2006, according to a University of Montana institute's study, more than double last year's record number of tourists. *Billings Gazette*; Feb. 8

Luring new industry may be a risky venture. Kalispell, Mont., has been trying to lure a company's customer-support center and its 500 jobs, and some critics are raising questions that may apply to the rural communities across the region: Is the city's risk too great, and why should new business get government help that established firms don't? *Kalispell Daily Inter Lake*; Jan. 24

Native Americans, as much as any rural Westerners, are adapting to the new economy. But unacceptable, deep poverty persists on many reservations.

Destitute Arizona tribal members seek share of gambling proceeds. More than 1,500 residents of Arizona's Salt River Reservation have signed petitions urging the tribe to share its gambling profits with tribal members. For many, the checks would be like winning the lottery. *Arizona Republic*; Jan. 13

Nevada tribe must decide: cash vs. land claim. The impoverished Shoshone on Nevada's South Fork Reservation have $116 million in the bank and a wrenching decision to make. Disbursing the account would pay each tribal member about $20,000 -- in return for their claims on 23.6 million acres of ancestral land. *Los Angeles Times*; Feb. 9

Living conditions primitive for most Navajo. More than half of the Navajo Reservation's 56,372 homes lack plumbing and a large percentage still heat with wood. An array of cultural, financial and bureaucratic barriers mean most housing will never be more than rude shelter. *Boston Globe*; Feb. 8

The rural West is a battleground for endangered species issues. Typically the conflicts involve threats to agriculture and forestry.

Critics question leaving trees for salmon. Opposition is mounting against the federal salmon-recovery plan's requirement to leave a 200-foot corridor of trees along river banks. Loggers and farmers say that will rival spotted owl restrictions for crippling the timber industry. *Idaho Statesman*; Jan. 13

Groups sue over grizzly rules. Two environmental groups have sued the U.S. Fish and Wildlife Service, saying rules the agency adopted to protect grizzly bears in the Cabinet-Yaak and Selkirk recovery areas are too weak. *Spokesman-Review*; Jan. 27

Idaho wolf pack targeted for 'control action.' Federal agents will probably kill on wolf from a pack that killed a calf on a Clayton, Idaho-area ranch, then returned a second night to chase horses. *Idaho Falls Post-Register*; Jan. 26

Illegal poison used to kill Idaho wolves. Two wolves -- and a fox and a rancher's dog -- have been killed near Salmon, Idaho, by Compound 1080, a poison long banned. Wolf advocates are blaming anti-wolf groups for encouraging the killings. *Montana Standard (AP);* Feb. 7

Conflicts about public lands management are especially intense. Ranching, forestry, and recreation on public lands are frequently in the news.

Groups sue to keep grazing permits in ranchers' hands. Several pro-ranching groups are asking the U.S. Supreme Court to ban non-ranchers from holding grazing permits on federal land. They argue that when groups such as the Nature Conservancy buy ranches to preserve wildlife habitat, they shouldn't be allowed to acquire accompanying permits. *Salt Lake Tribune*; Jan. 31

Montana lumber mill to close for lack of federal logs. A family-owned lumber mill in northwest Montana is closing after 72 years, idling 245 workers in the plant and in the woods. The mill's manager says his business could no longer get enough federal timber to operate. *Kalispell Daily* Inter Lake; Jan. 12

Snowmobilers, enviros fight over use of Utah forest. The number of snowmobiles and ORVs in Utah has doubled in the past 10 years; add the Wasatch-Cache National Forest to the list of those trying to balance motorized recreation with environmental concerns in an emerging forest plan. *Salt Lake Tribune*; Jan. 10

Colorado forest's plan would limit recreation, close roads. Colorado's White River National Forest is suffering from overuse, and before the forest's management plan becomes a national model for limiting the effects of too much recreation, officials have to deal with the impressive number and variety of groups they've alienated. *High Country News*; Jan. 18

In many parts of the rural West, anger towards the federal government runs high. At the heart of the issue is a question of sovereignty. Who should decide how resources in rural parts of the region should be used?

Salmon rules meet with anger, obscenities. A angry Spokane crowd of 400 called proposed federal rules to protect populations of salmon and steelhead an unprecedented federal grab for power over their land, water and rights. *Spokesman-Review*; Jan. 27

Sawmill owner starts shovel drive to rebuild Nevada road. The owner of a Montana sawmill is calling for rural businesses irked by federal policies to join his protest. He aims to collect 10,000 shovels to rebuild a Jarbridge River road that's been the recent focus of anti-fed controversy. *Kalispell Daily* Inter Lake; Jan. 5

Report did find anti-fed harassment in Nevada. News reports and critics' claims that a Forest Service investigation found no basis for ex-forest supervisor Gloria Flora's claims of harassment are wrong, according to the report. Investigators did find harassment, but they didn't find cases that should have resulted in criminal prosecution. *Missoulian*; Jan. 26

The wisest among us understand that the old rural West is gone forever. They urge us to avoid searching for scapegoats and they plead for healing as we create a new future for the region.

Ex-forest supervisor takes her protest on the road. Gloria Flora, the former supervisor of a national forest in Nevada who quit to protest anti-federal harassment, will speak in three

Montana cities this week, about attitudes that prompted her resignation and about civility in public discourse. *Bozeman Chronicle*; Jan. 26

Flora says critics must accept change. Gloria Flora, on a speaking tour sponsored by a Montana human rights group, said government polices are easy targets, but are only the symptoms of change across the West. *Kalispell Daily* Inter Lake; Jan. 27

Shovels only deepen the mire. Shipping shovels to Nevada is meaningless protest that further polarizes the debate. All that time and effort would be better spent working together to find ways to cut trees while preserving habitat and protecting water. *High Country News*; Feb. 8

Stewardship sales benefit loggers, improve forest. When a few Montana loggers who wanted to work sat down with a few local environmentalists who wanted to restore national forests, they came up with an idea that's turning into a regionwide project. *High Country News*; Jan. 18

Forums are key to Utah valley's planning. Residents of Utah's Ogden Valley are trying something simple but novel to keep their idyllic lifestyle. Once a month they sit down with all three planning agencies with jurisdiction and discuss the valley's future. *Salt Lake Tribune*; Jan. 17

THE PROS AND CONS OF PRODUCTION AND MARKETING CONTRACTS

Alfred R. Million
Poultry Contract Grower

Hello, I am Alfred Million a Native American and I own a small farm near Tahlequah, Oklahoma. My sons and I have 5 broiler chicken houses. We went into the chicken business in 1976. We also raise cattle, hay and sell wood shavings for chicken house bedding and horse stable bedding.

I received my first contract in May of 1976 so I borrowed money to build the chicken houses. Once the houses were built we started production which is a twenty-four- (24) hour seven (7) days a week job and definitely a family business. It cost me approximately $30,000 dollars per house to build and at that time propane cost .20 cents per gallon. Now according to the type of Equipment requirements and dirt work it would take approximately $85,000 to $100,000 dollars to build new chicken houses. Today propane prices have increased to .98 cents per gallon. If you pre-purchase propane some propane companies will lock in a lower rate. This year's pre-buy rate is .58 cents per gallon.

In 1976, when we started in the chicken farming business the bottom grower received $2.50 per one hundred pounds and the middle Grower/Producer made $3.00 per one hundred pounds. Now 24 years later the average pay received of the bottom Grower/Producer is $3.10 per hundred pounds and the middle Grower/Producer is $4.25 per one hundred pounds. This isn't a very large pay increase compared to the rising costs of fuel, utilities, insurance, equipment and parts. As farmers our pay rate hasn't increased at the same rate as inflation. We are given a fuel allowance of .02 cents per bird for 2 winter flocks. This fuel allowance is the same today, as it was 24 years ago even though the price of fuel has risen approximately 400%.

The chicken company retains title to all chickens until they die and then the dead chickens become the Grower's/Producer's responsibility. The grower has to dispose of these dead chickens at his own expense especially if you have a large death loss due to heat or disease.

The chicken company schedules the pickup of birds according to the age of the birds. If the schedules were made to pickup all birds of the same age it would be fair, in other words all birds need to be picked up as near to the same age as possible within the same week. All birds need the same type of feed for every grower for every week. All birds need the same medication for the same week so that all these flocks are closer in comparison and in cost. The close comparison would make the growers pay more uniform.

Each Grower/Producer whose Net Pound Value, as calculated above, is two and one-half cents (2.5 cents) more or less than the Average Net Pound Value shall be removed from the average. *Why? Because if the Grower/Producer was left in the line-up the Company would have to spread their cost over the whole group from the middle to top therefore the Company would have to spend more money on pay.* Also, those Growers/Producers who are Company management employees or their immediate family (including, but not limited to spouse, parents, parents-in law, brothers or sisters, brothers-in law, sisters-in law, sons or daughters, sons-in law or daughters-in law, and step children) shall be settled with all Growers/Producers. The Average Net Pound Value for the "Adjusted Average Net Pound Value" for the Growers/Producers settling birds for the week.

Each Grower/Producer settling broilers during the week whose Net Pound Value is equal to the Adjusted Average Net Pound Value at this location, determined in subparagraph C, will receive the Base Pay of four and twenty-five hundredths (4.25 cents) cents per Net Pound. For each one hundredth cent (.01 cent) per Net Pound that the Producer's Net Pound Value is less than the Adjusted Average Net Pound Value. The Grower's/Producer's shall receive one-hundredth cent (.01 cent) more than the Base Pay per Net Pound. For each one hundredth cent (.01 cent) per Net Pound that the Grower's/Producer's Net Pound Value is more than the Adjusted Average Net Pound Value, the Grower's/Producers shall receive one-hundredth cent (.01 cent) less than the Base Pay per Net Pound. No Producer shall receive less than three and ten hundredths (3.10 cents) per Net Pound.

There are so many variables in the contracting end that the Grower/Producer really needs to be in the process of writing the contract.

Each Grower/Producer needs the same number of chicks per square feet of house space. All Growers/Producers need to receive the same medication and at the same age of chickens. The feed ration needs to be the same for all Growers/Producers.

Example: During the summer months the calories in the feed may be reduced to help with the mortality rate, but the change in the feed needs to take place at the beginning of each week so every Grower/Producer will get the same advantage.

I feel the company should not demand new or more equipment as long as the Grower/ Producer is doing a good job raising chickens and keeping his costs low which is a problem we have had in the past. The buildings are built 2 or 4 on a farm usually 40 X 400 feet and built to company specifications so they can only be used to grow chickens. If you should change to a different chicken company the equipment in the chicken houses has to be rerouted or at least rearranged and often times the existing equipment must be changed or more added. The closer the Growers/Producers are grouped in a weeks settlement the less they get paid therefore we need a square foot contract with incentives for Growers/Producers who do a good job.

This is one Industry where there are no cost of living increases in pay. As I have said earlier in 1976 our base pay was $3.00 per one hundred pounds. Today our base pay is at $4.25 per one hundred pounds.

The fuel allowance of .02 cents per bird has stayed the same rate for 24 years while during those 24 years the price of fuel has increased. This pay can vary according to the type of chicks and quality of chicks. The quality and type of feed (amount of calories) and medication, if given in the time frame it's needed.

All chicks, medication and feed costs are charged against the Grower/Producer so it is of real importance that all Growers/Producers get the same quality of chicks, feed and medication.

The Grower/Producer relies on the hatchery chick count and feed weight at delivery even though it is a split load. The Grower/Producer relies on the Company's Processing Plant for the number and weight of chickens processed and condemned.

As I have said there are so many variables involved such as the number of chickens placed, the breed of chickens placed, type of feed used and amount of feed used (feed with or without medication, withdrawal feed and finisher feed)

We also need to address the issue of down time, while catching chickens. When trucks run late break down or loader break down time occurs will effect the chickens. This is very important because of "shrinkage". The feed and water have already been turned off for several hours therefore the chickens have already shrunk and then they will start to eat off of the floor therefore this increases the chance for a higher number of condemned or contaminated chickens received by the Processing Plant.

The average Grower/Producer payment will be .20 cents per chicken after condemnation. A 40 X 400 chicken house will hold approximately 20,000 chickens, then you have to subtract the number of chicken mortality (this varies per flock), and the number of chickens condemned by the chicken company plant.

Example: on the average your pay may be figured on 19,000 chickens more or less. Then the expenses such as Electric, Labor, Bedding, Water, Mortgage, Insurance and various equipment repairs are subtracted. Most Growers/Producers don't even make minimum wage. I have seen checks for as little as $5.00.

In Oklahoma two (2) years ago we had legislation started for better management of poultry waste from chicken houses. The chicken company lobbyists told the legislation committee they didn't want them to police the law that they would make sure the Grower/Producer followed their management plan and if the Grower/Producer didn't follow the plan as they were suppose to they wouldn't supply them with anymore chickens.

Some of the things that are good about having a contract are that the Grower/Producer doesn't have any of the marketing risks. A family can stay on the farm and work at home (but can't make a living). There are other opportunities for income such as fertilizer from chicken house clean out which helps produce excellent hay crops.

In closing I would like to say that we need square feet contracts with incentives or bonuses for performance. The fuel allowance and rate of pay needs to match the inflation from the past 24 years.

One thing that stays in my mind is that the Company says if you don't do what we say in regard to equipment or equipment placement changes we will not give you anymore chickens. The Grower/Producer has to give a 60-day termination notice before terminating their contract with the Chicken Company, but the Company can terminate a Grower/Producer anytime.

Thank you for your time. Are there any questions?

Thank you.

IMPROVING FINANCIAL PERFORMANCE BY DIVERSIFYING CROPS

Richard H. Wahl
Extension Association Economist
Kansas Farm Management Association N.W.

In a time of generally depressed farm commodity prices, the Net Accrual Farm Incomes of grain and livestock farms have suffered. In Kansas, the 2139 participating extension farm management operations averaged only $ 16,778 in 1998. A simple average of the Illinois, Iowa and Kansas farm business management associations indicates only 21% of the previous four years average farm incomes in 1998. 1999 data is in process currently, but the aggregate numbers from several sources indicates a similar poor financial performance in 1999. In the face of these difficulties, the NW Kansas Farm Management Association experienced a $ 50,485 average accrual net farm income in 1998. This is 133% of the four prior years average incomes. This is explained in part by new found diversity and intensity in dryland (non-irrigated) crop production.

The Northwest Kansas area is located in the high plains region. The seventeen county area will range from 16 to 22 inches of average annual rainfall. The soils are moderately deep, silt loams and are subject to wind and water erosion. Corn, wheat, soybeans and sunflowers are common on center pivot irrigated acres. Recent year's analysis reports average 32% of cropland acres under irrigation. This region is remote from major populations making direct and value added farm sales extremely infrequent. The area is focused on field crop production. During most of the last fifty years, dryland crop production has predominantly been hard red winter wheat in typically a wheat/fallow rotation to allow sufficient soil moisture recharge between crops to assure profitable production. Cultural practice during the fallow period has been dependent on the stubble mulch characteristics of the V-blade plow. Large fields with high horsepower four wheel drive tractors pulling from 35' to 54' of blade plow make this a low cost and effective process. The advent of no till row cropping came slowly to the region, as wheat-fallow fits nicely into the allotment and base acreage government programs which were in place in one form or another for decades prior to 1996. Trash tillage effectively prevents noticeable erosion problems so little added conservation benefits from no till were perceived by farm decision makers.

During the late 1980's dryland sorghum acreage averaged only about 6.6% of dryland acres each year. During this period a few producers started to substitute dryland corn for grain sorghum in the area. **Figure 1**, illustrates this. In 1992 dryland corn finally exceeded 2% of dryland crop acreage in the NW Kansas Farm Management analysis summary. These early adopters were attempting to capture the modest price benefit that corn normally affords in western Kansas. In addition, if base acres could be established the government program payments of the time favored corn. Many of these early adopters already owned corn producing equipment (planters, cultivators, corn heads) since they were already raising irrigated corn. These producers were used to irrigated corn inputs and were not especially cautious about expenditures. Some of the earliest (late 1980's early 1990"s) corn enterprise work in the Northwest data indicated a high cost per unit of production for this reason and the technology was new and being learned.

No till technology had grown from its start in the late 1960's. In Nebraska, the concept of eco-fallow

caught on and started to appear in NW Kansas in the late 1980's. Eco-fallow is basically a wheat, corn or sorghum, fallow rotation using chemical herbicides for weed control. This shortens the fallow period. It leaves wheat stubble to catch and hold moisture before the row crop and allows two crops in three years. Many producers moved some production this direction assuming that the extra production would be profitable, looking almost entirely at production and income without much attention to the cost side of the situation. This process takes time to implement. Arrangements with landlords must be considered. Chemical, equipment needs and timing issues must be learned.

As the substitution of chemicals for tillage occurs, a way to measure this change without attempting to define no till or reduced till is to measure chemical costs as an index of overall tillage/weed control costs.

Less Tillage Index = Chemical Costs / Chemical Cost + Crop Labor + Machinery Costs

As herbicides are substituted for tillage this index will indicate the relative adoption of the reduced tillage technology. When the technology is mature, this ratio may better reflect the cost efficiency of chemical substitution for tillage. **Figure 2** demonstrates this index over the last nine years. In dryland grain sorghum tillage has gradually given way to more herbicide use. Corn, on the other hand, has had a high level of chemical substitution since dryland production rose sharply in 1990. The corn index varies more with specific weather related years. These values are the weighted averages for dryland corn and grain sorghum production including both no till and reduced tillage systems. These are specific to enterprise analysis for these crop years, not whole farm values, which will easily be misleading because of chemical uses on wheat and irrigated acres. **Figure 3** indicates this index for dryland corn showing specifically the differences between no till and reduced tillage approaches. **Figure 4** will show this same relationship for no till and reduced tillage dryland grain sorghum. This index might be expected to stabilize at about .35 with changes from there probably dependent upon chemical, machinery and labor relationships. For instance an unexpected rise in herbicide prices or labor costs changing rapidly.

Another way to look at these cropping changes is shown in **Figure 5**. Dryland spring planted row crop acreage gained rapidly especially in the 1996-98 period. This has been lead by corn which graphically represents most of the acreage growth. The portion of corn and sorghum produced under no-till conditions is shown in **Figure 6**. This is as a percentage of dryland devoted to these two crops. One might expect these percentages to "not" approach 100%. The high plains is volatile from a weather perspective. Moisture conditions outside a perceived "normal" range will require flexibility from producers. They may avoid losses by stepping out of the rotation to produce no spring planted crop if inadequate soil profile moisture is apparent. Or a substitution may occur from corn to grain sorghum where less cash outlay is required. In dryer seasons yet, dryland oil sunflowers perform well. **Figure 7** illustrates the return above variable costs of oil sunflowers relative to corn and grain sorghum in recent years. Northwest Kansas does have sunflower processing capability. The real limiting factor for sunflowers is the lack of good residual herbicides labeled for sunflowers and the inability to use atrazine based fallow chemicals in the stubble laying idle the Fall before planting sunflowers. The relationship of sunflower loan rates and the average cost of production for sunflowers actually favors this crop over sorghum and corn. Inconsistent stands, yields and the lack of better herbicides has prevented further expansion of this crop in the area.

Along with the changing mix of dryland crops, intensity of cropping is also increasing. In some cases

the wheat-corn-fallow rotation has given way to a wheat-corn-sorghum-fallow rotation. Individual farm operations will abandon fallow periods altogether if moisture remains plentiful enough. The soil structure improvements that come with no tillage help this along, but overall weather patterns on the high plains must cooperate. **Figure 8** provides a picture of the dryland acreage fallowed as a percentage of all dryland. In 1988, just over half the dryland acreage was fallow, this would be due to the high set aside requirement in 1988 and little production of dryland feedgrain crops at the time. This change to 38% fallow in 1998 is significant in that a 33% fallow rate would be expected if all farms were using a wheat-corn/sorghum-fallow crop rotation. The changes described are dramatic in the countryside. Work schedules are changed. Chemical herbicide commercial ads are found even in prime time on Western Kansas television and radio. The commercial grain industry in the area was caught under prepared for the last four years. Large amounts of Fall harvested crops have been stored outdoors during these years and farm managers are making the move to increased on farm storage capacity in part to counteract the unreliable and unfavorable local grain basis in cash markets during the Fall through late Spring. This cropping intensity appears to be a fairly permanent part of Western Kansas agriculture. The more astute managers are asking however if Government Policy changes will negate their cropping and storage decisions.

Finally, to what extent have these cropping mix and intensity changes resulted in improved net farm incomes? The analysis averages are not totally convincing that net income has been helped. **Figure 9** shows the theoretical average income using the dryland acres actually cropped over the last nine years, using the NW enterprise average returns above variable costs for wheat, corn and sorghum and the actual average dryland returns above variable costs. Wheat-corn-fallow shows excellent potential but also significant variability. Wheat-sorghum-fallow lacks overall potential yet does not present the downside risk of the corn rotation. The traditional wheat-fallow, particularly because of its lack of intensity is weak in net income generating capacity by comparison. What is disappointing to those who would prefer to focus on production volume, is that actual group performance has only been slightly better than the wheat-fallow theoretical amounts. In 1996 and 1998, what was actually done was better than the traditional approach. Notice however, that the theoretical two crops in three year averages consistently have more potential than the wheat-fallow and are better income producers than the average situation. For those producers who have put the more intense rotation in place, one would expect to find better than average financial performance. Individually, this is what is found. Those producers who skillfully have implemented intense cropping rotations have significantly improved income statements, assuming of course that other factors (livestock losses, marketing problems) haven't overridden the cropping income.

NW Kansas dryland farmers need to be mindful of several points when undertaking intensified cropping sequences:

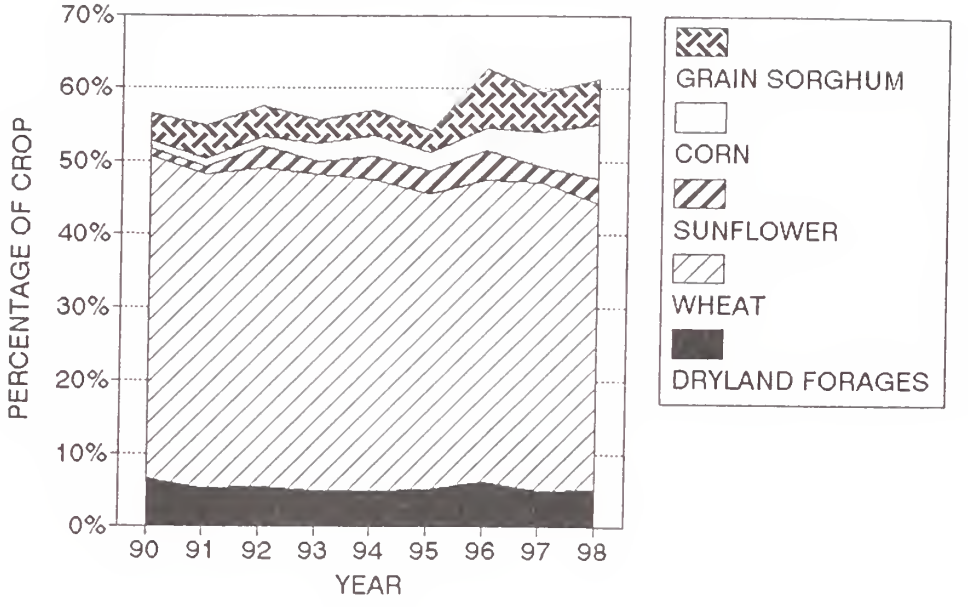
- Make sound seed and population choices.
- Know preplanting soil moisture reserves and adjust appropriately.
- Make herbicide selections carefully, keeping effectiveness and cost in mind.
- Understand the increased income potential and also cash loss potential when cropping corn versus grain sorghum relative to the farm's financial position.
- Make rational equipment choices relative to cropping sequence and acreage volume.
- High Plains weather and markets are volatile, maintain a degree of flexibility in cropping.

Implications for US and world agriculture:

- Marginal production areas can make overall crop size and mix more difficult to predict.
- Technology shifts are real with sometimes unexpected results.
- Not all geographical areas are equal in the potential for cropping intensity or diversity.

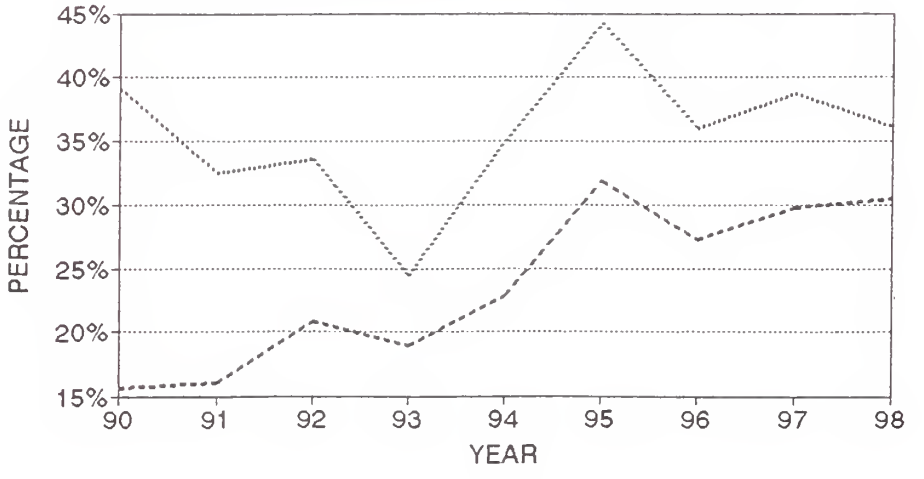
NW KS FMA, FIG.1

CROP ACREAGE PERCENT, DRYLAND



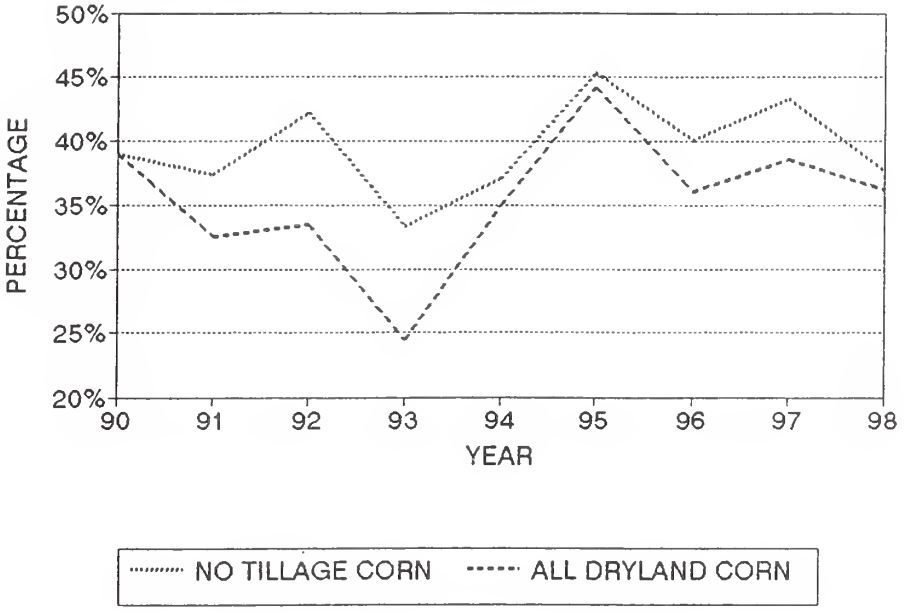
NW KS FMA,FIG.2

REDUCED TILLAGE INDEX AVERAGE



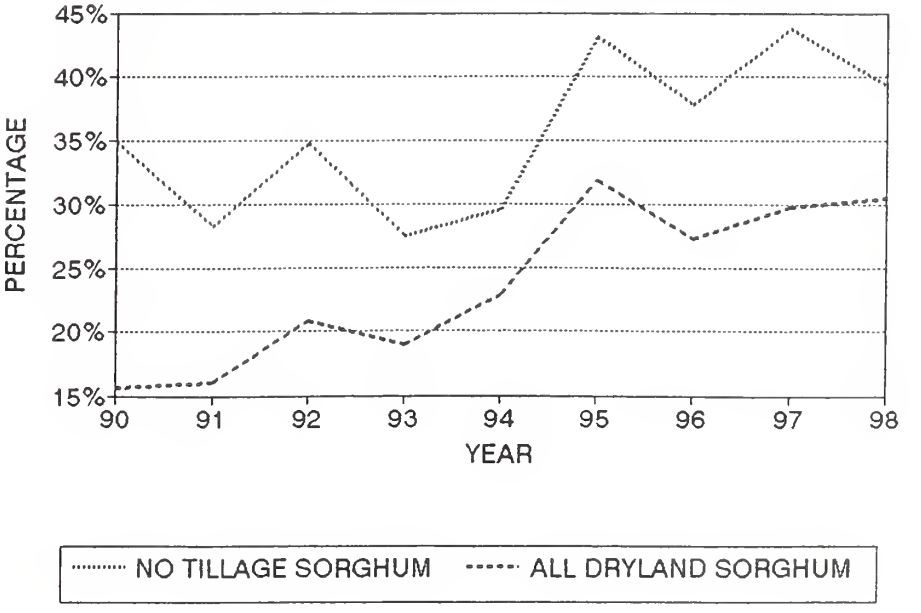
NW KS FMA, FIG.3

DRYLAND CORN REDUCED TILLAGE INDEX

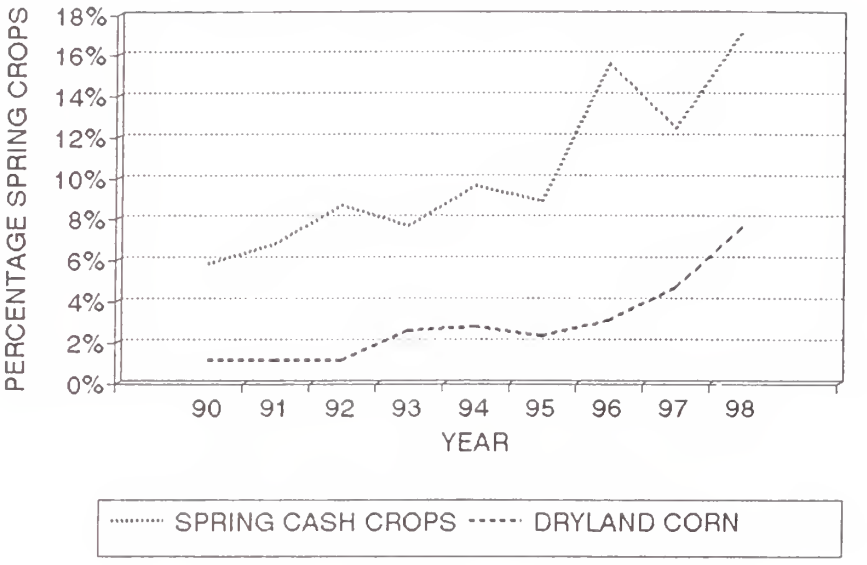


NW KS FMA, FIG.4

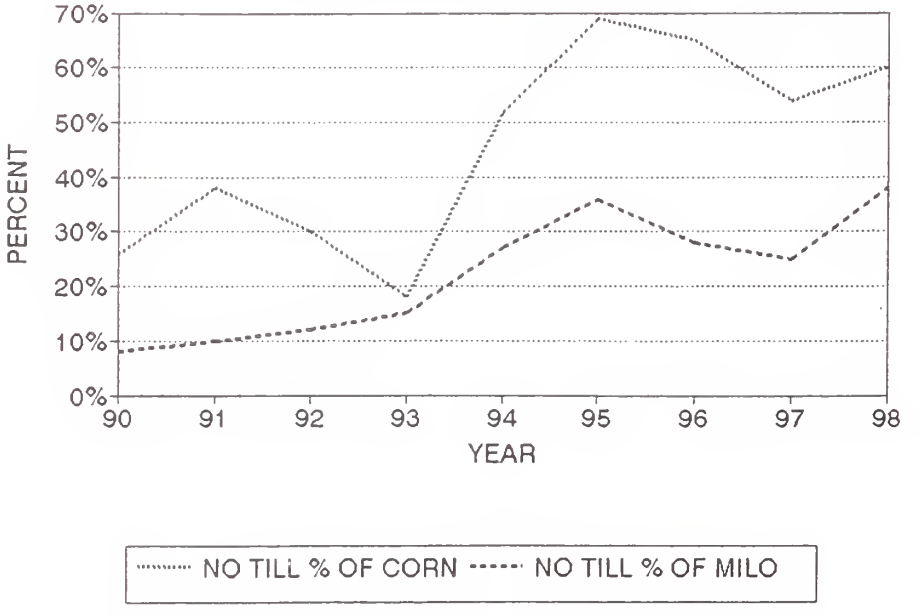
DRYLAND MILO REDUCED TILLAGE INDEX



NW KS FMA, FIG.5
DRYLAND SPRING CROPS

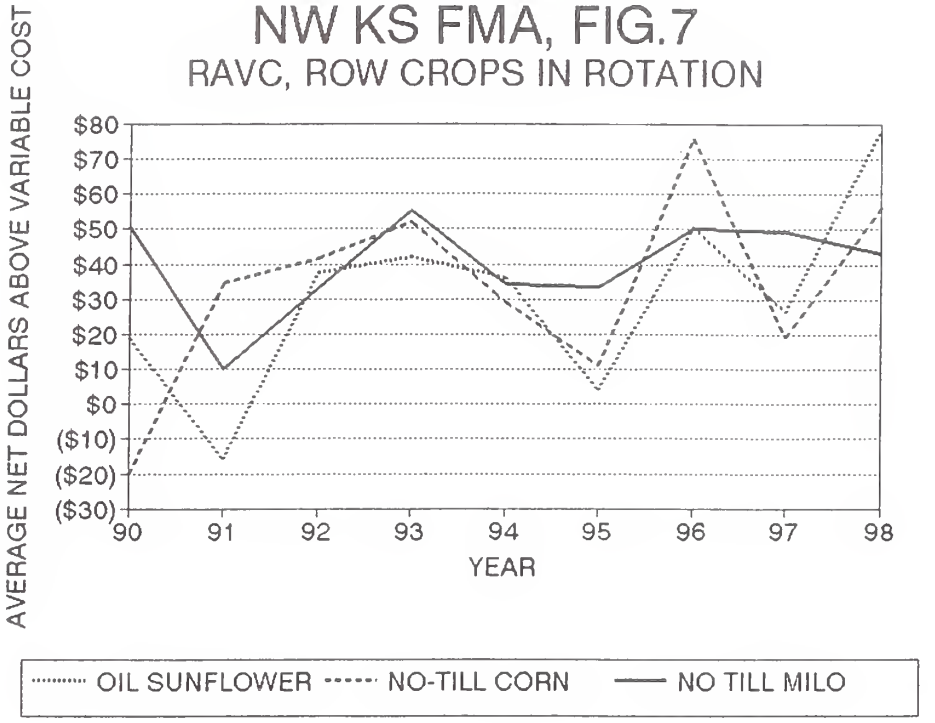


NW KS FMA, FIG.6
PERCENTAGE NO TILL



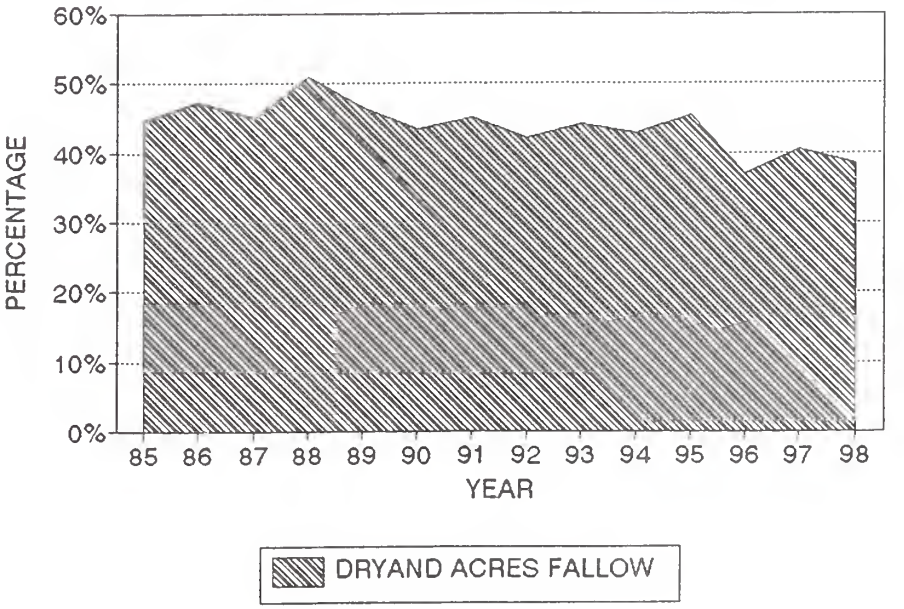
NW KS FMA, FIG.7

RAVC, ROW CROPS IN ROTATION



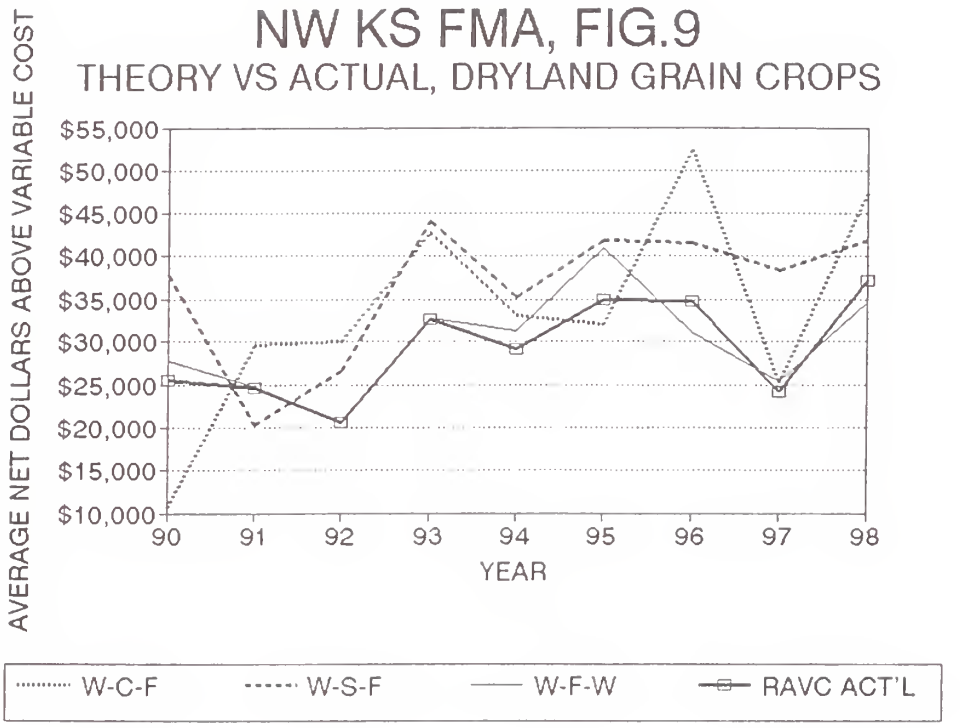
NW KS FMA, FIG. 8

CROP INTENSITY/FALLOW LAND %



NW KS FMA, FIG.9

THEORY VS ACTUAL, DRYLAND GRAIN CROPS



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Concentration in Agribusiness

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Three developments drive concerns over concentration in agribusiness. First, farmers face declining numbers of buyers in such key commodity processing industries as meatpacking and grain and oilseed processing. Second, contracts are replacing cash markets as a means for organizing the marketing of farm products. While production and marketing contracts can limit producer risks, reduce processing costs, and introduce effective incentives for quality control, they may also introduce unexpected risks for producers, allow processors in highly concentrated markets to practice price discrimination, and their growth may reduce the effectiveness of spot markets. The third development is the expansion of biotechnology in input markets, where disputes over the exchange of intellectual property can lead to sharply increased concentration in input markets.

Introduction

Concentration has become an important issue in agriculture, reflecting a broad based set of concerns over processor market power and marketing methods, over changes in the size of farm enterprises, as well as their production methods and business organization, and over the resultant impacts on rural land use and rural communities. The concerns have appeared in Congressional hearings on the topic, conferences, and numerous media reports, and were succinctly captured in a March 1999 letter from 23 farm state senators to President Clinton, calling for greater antitrust scrutiny of food and agricultural industries. This paper describes three of the key developments that drive those concerns: declining numbers of buyers of agricultural commodities, changes in methods of exchange between growers and buyers, and the emerging influence of biotechnology, particularly in input markets but with likely impacts throughout the food marketing system. It will then focus on one concern, by discussing the linkage between concentration and processor market power.

Buyer Concentration

Table 1 highlights recent concentration trends in meatpacking, one of the sectors that have attracted the most attention. The top columns show trends in four firm concentration (CR4)--the

share of the market held by the four largest firms in the market. In this case, the market is the procurement market for animals, so the data show the share of all hogs slaughtered the four largest hog packers, and the share of all steers and heifers slaughtered by the four largest steer and heifer packers (steers and heifers are a better market definition than all cattle, both because plants specialize in steers and heifers and because the animals produce different meat products).

CR4 in steers and heifers is quite high--four firms account for nearly 80% of all slaughter. Average CR4 across all U.S. manufacturing industries is closer to 40, and 80 is generally considered to be highly concentrated. Moreover, because cattle usually aren't shipped far for slaughter, many producers may only see buyers from two or three nearby packers; that is, local market concentration may be higher. The other striking element about steer and heifer slaughter is the dramatic increase in CR4, from 36 in 1980 to 72 in 1990, with a further increase to 78 in the last year of our data, 1997. No other manufacturing industry shows as dramatic an increase in any 10 year period since the U.S. Census Bureau began regularly publishing concentration data in 1947.

Hog slaughter is not as concentrated as steer and heifer slaughter--the top four hog packers handled 54% of slaughter in 1997. But CR4 in hog slaughter has also increased sharply, from 32 just twelve years earlier, and it continues to increase. As in other livestock industries, hogs don't travel far to market, and as a result many producers may have more limited local options, selling to buyers from only two or three packers.

The lower panel of table 1 provides data on the size of packing plants, information that may account for some of the CR4 increase, but that also creates some separate concerns about agribusiness concentration. The panel shows that slaughter has shifted sharply toward large plants (defined as at least 1 million head annually in hogs, and at least five hundred thousand head annually in steer and heifer slaughter). In 1980, 63% of all hog slaughter occurred in large plants, but that share increased to 88% by 1997. The shift in steers and heifers was especially striking; less than a quarter of slaughter occurred in large plants in 1980, but large plants accounted for over 80% of slaughter just fifteen years later. Moreover, the typical size of large plants grew sharply in each industry.

The shifts in plant size suggest that there are economies of scale in slaughter, and that scale economies and the resultant shift to large plants accounts for part of the increase in concentration. Indeed, that is the finding of a forthcoming ERS analysis of scale economies and concentration in meatpacking (MacDonald, et, al, 2000). If true, that would suggest that larger slaughter plants realize lower costs, and that that increasing meatpacker concentration may therefore have led to lower meat prices for consumers. But enormous slaughter plants (2,000 to 3,000 workers) sometimes impose significant new social costs on rural communities in the form of sharp changes in community social structures and increased educational and social service commitments to service plant work forces.

Meatpacking represents the most striking example of increased concentration in agribusiness, but the pattern is also more widespread than would be suggested by an emphasis on meatpacking alone. Table 2 describes recent changes in concentration in grain and oilseed milling industries,

again using four firm concentration ratios (here derived from U.S. Census Bureau data on product shipments in the several industries). Several patterns stand out. First, CR4 is quite high in these industries, and the measures have generally grown through time. Second, the same large agribusiness firms are the leaders in each industry, and are active in other related businesses (such as grain merchandising or livestock feeding). Increasingly, farmers deal with a common small set of very large agribusiness corporations in a variety of different contexts. Third, and not shown in the table, scale economies don't seem to easily account for changes in concentration in these industries--they don't show the same sharp changes in plant sizes that we see in livestock slaughter, and mergers among existing firms and plants appears to be more important.

These aren't the only agribusiness sectors showing increased concentration. Recent mergers have reduced the number of independent railroads, important in grain and fertilizer shipments, to two or sometimes three in most parts of the country. Census Bureau data show increased concentration in some traditional input industries like agricultural chemicals. Finally, recent and likely future mergers among supermarket chains, which may not greatly alter the number of stores that consumers generally have available to shop at, may still sharply reduce the number of different chains competing to buy produce from agricultural shippers. In short, farmers do face significant reductions in the number of competing buyers across a wide range of markets.

Contracts

For many farmers, the increasing usage of contracts as a method of market exchange exacerbates some concerns with concentration. Agricultural contracts are arrangements under which farmers agree to deliver products of a specified quality and quantity to a contractor at specified times. Contracts also specify a payments agreement (an actual price or fee, or sometimes a pricing formula). Contracts generally stipulate who owns the product, who pays for specific inputs, and who bears various risks.

Table 3 provides some recent evidence on the use of contracts, using USDA's 1997 Agricultural Resource Use Study (ARMS) data. ERS has used other data from the survey to classify farms enterprises into several types, and the table focuses on family-owned farms for whom farming is the principal occupation (excluding farms owned by nonfarm corporations and farms operated by part time or largely retired families). The table divides those farms into small (less than $250,000 in annual farm sales), very large (more than $500,000 in sales), and large.

The table shows that nearly one third of all farm sales were covered by production or marketing contracts in 1997, and that coverage is closely related to farm size--nearly two third of the very largest farms had contracts, and 44% of those farms' sales was covered by contracts. In contrast, only 16% of small farms had contracts, and contracts in turn covered only 20.9% of their production. Contract use varies with commodity, being especially prevalent in hogs, poultry, cotton, and some fruits and vegetables.

Contracts can provide a variety of benefits to farmers, processors, and consumers. They may allow farmers to reduce price risks, transferring the risks to processors, who often are better

positioned to bear such risks. In some cases, holding a contract may make it easier for a farmer to acquire debt financing. Contracting may allow processors to schedule a steady flow of the agricultural commodity through plants, thereby improving capacity utilization and reducing processing costs. Some contracts can provide incentives to produce higher and more consistent levels of product quality, thereby increasing consumer demand.

But reliance on contracting may also introduce new costs, for contract users and for farmers who don't use contracts. Poorly understood or designed contracts may actually create new risks for farmers under contract. Increased use of contracts for some commodities may reduce cash market volumes enough to significantly increase cash market volatility (increasing price risks for noncontracting farmers); publicly reported cash market prices may also then become less reliable guides to market developments.

In concentrated markets with only a few buyers, farmers worry that buyers may be able to use contracts as a tool of price discrimination, thereby exploiting the potential market power created by concentration. Contracting farmers worry that concentrated buyers may be able to manipulate thin cash market prices, which frequently form the basis for contract settlements. In short, contracts may combine with buyer concentration to allow buyers to exploit market power. Market power concerns are exacerbated, for many farmers, by the close linkages between contract utilization and farm size (table 3). Note that over 83% of small farms in table 3 do not have contracts, and that this group alone accounts for over two thirds of all full time family farms in the table. For many of these producers, contracting is a tool used by much larger farm enterprises, and is therefore associated with consolidation into larger farms, cost pressures on smaller producers, and with dwindling farm communities.

Biotechnology

Agricultural biotechnology refers to the process whereby the genetic structure of a plant can be altered by physically inserting genes with desired characteristics. Developments in biotechnology are likely to have many far reaching impacts on agricultural production and on food processing and consumption, but I will focus my remarks here only on the effects on concentration in agricultural supply sectors, and principally on seed providers.

As biotechnology has spread through the seed industry, a striking reorganization of firms and industry structure has taken place. Table 4 outlines several striking features of the reorganization. First, large diversified firms, with backgrounds in agricultural chemicals (DuPont, Dow, Monsanto) or in pharmaceuticals (Novartis, Aventis) made large investments in the industry through a series of acquisitions of seed companies and small biotechnology research firms (trait developers). Second, seeds have become a concentrated market (some crops more than others), with a small set of large firms active across many crop categories. What the table doesn't show is the uncertainty that attends attempts to predict future market structures in biotechnology-based industries. Many of the firms listed in table 4 have their agricultural divisions up for sale, and several of the mergers underlying the table have come undone. The best prediction that can be made is that there are likely to be many sales, divestitures, and reorganizations of biotechnology

firms in the near future, but the eventual organization of the industry is up for grabs.

Why is reorganization occurring? Biotechnology research is complex and increasingly expensive. There may be economies of scale in some parts of the research effort--that is, large firms may be more effective at developing and marketing new seeds. But research effort is only part of the story. The outcome of the research process is a new trait. Traits must still be combined with existing seed types that contain other desired characteristics. Research firms and existing seed companies could, and often do, reach agreements on transferring knowledge and research traits among themselves, but those "market arrangements" often don't work smoothly, and as a result seed firms often ally or merge with research firms. Moreover, the newly developed seeds often create complementarities with agricultural chemicals--seeds may reduce the need for herbicides or pesticides, or they may alter the mix of specific ag chemicals that a farmer needs. Because a farmer's chemical and seed decisions are often now made jointly, and because ag chemical companies possess strong research organizations and extensive marketing organizations, we also see mergers and alliances among chemical firms, research firms, and seed firms.

Biotechnology reorganizations are not driven by clear economies of scale in production, as in livestock slaughter. Rather the shifting set of mergers and alliance reflects a search for the most effective ways to develop and to exploit biotech research. Because the end of that search--the best way to develop and exploit--isn't clear, we can expect to see continued reshuffling.

Should Concentration Concern Farmers?

I'll emphasize one aspect of concentration--the potential for market power that will either lower the prices that farmers receive for their products or raise the costs that they pay for inputs. One thing we know from the economics of industrial organization is that concentration alone is not a precise guide to the existence and exercise of market power. Other factors, such as the ease of entry into a market, the nature of the product, and the alternative options available to farmers, combine with concentration to determine whether firms have market power.

Their are clear instances of agribusiness firms exercising extensive market power. For example, the four producers of lysine, a key ingredient in animal feed, were able to raise prices by amounts ranging from 40-70% during the period when they were conspiring to fix prices (Connor, 1997). Other cases of international price-fixing cartels have arisen in recent years, including one in vitamins that are also key feed ingredients. On the consumer side of the food sector, the results of the government's attempts to induce competition among the three makers of infant formula are just as striking; the federal Women, Infants, and Children (WIC) program, which purchases about half of the infant formula consumed in the United States, pays wholesale prices for formula that are one fifth the wholesale price offered to non-WIC buyers (GAO, 1998). Assuming that the government receives the competitive price, prices in the non-WIC market reflect enormous market power. These cases should give pause to anyone who thinks that cartels are inherently unstable or that competition can have only small effects on prices.

But increasing concentration doesn't necessarily imply sharp increases in market power.

Consider figure 1, which plots ERS data on farm to wholesale price spreads for choice beef from 1970 through 1997. The price spread is the difference between the price received by packers for beef and byproducts and the price paid by packers for the animals; it includes costs of slaughter and processing, transportation expenses for moving animals from feedlot to packing plant, and packer profits. The nominal spread in figure 1 is the actual price difference in current dollars, while the real spread has been deflated by an index of packer input prices that I developed (Packers faced inflation in the 1970's in the price of all inputs, like other manufacturers. But during the 1980's, packers' inflation experience diverged from other manufacturers, as packer production worker wages, which account for about 1/3 of slaughter costs, fell. Because of this, we need to use a specific packer deflation measure to get at real costs).

The nominal spread rose during the 1970's, but by a little less than the rate of inflation in packer input prices; as a result the real spread fell, reflecting productivity growth in packing plants. Now notice the trend during the period of rapid concentration increase, in the 1980's: nominal spreads trended down slightly during the period, and the trend matched the real spread, because input prices were unchanged, on average (increases in other input prices largely offset declines in production worker wages). During the 1990's, spreads fluctuated much more widely, but showed no long term increase. The figure tells a strong story: if large increases in concentration had large effects on packer pricing and profits, it doesn't show up in the price spread statistics.

But I've left one cautionary number out of the figure--the data are ended in 1997 because that's as far as my input price series goes. But in 1999, the nominal spread rose dramatically to 30.5 cents, 45% higher than the 1997 value. That's mostly profit--although I don't yet have input prices, I'm sure they won't rise much. 1999 was an unusual year, in a lot of ways. The question for the future is whether intense packer competition will erode that spread, driving it back to previous levels, or whether we've entered a new era in which packers recognize that they're highly concentrated, and manage to refrain from competing with one another.

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Table 1: Structural Change in Meatpacking

	1980	1985	1990	1995	1997
Four Firm Concentration					
Hogs	34	32	40	46	54
Steers and heifers	36	50	72	79	78
Large Plants Only					
Hogs--At least 1 million head					
Number of Plants	41	34	31	31	31
Share of Slaughter (%)	63	67	79	86	88
Average Size (m.head)	1.43	1.59	2.05	2.56	2.51
Steers/heifers--At least 500,000 head					
Number of Plants	8	17	18	22	22
Share of Slaughter (%)	24	53	66	81	80
Average Size (m.head)	0.73	0.85	0.95	1.01	1.02

Source: USDA/GIPSA
Notes: Large hog plants slaughter at least 1 million head, while large steer and heifer plants slaughter at least 500,000 head.

Table 2: Concentration in Grain and Oilseed Processing

Industry	Leading Firms	Four Firm Concentration			
		1977	1987	1992	1997*
Flour Milling	ADM, Conagra, Cargill, Cereal Food	33	44	56	62
Wet Corn Milling	ADM, Cargill, Staley, CPC	63	74	73	74
Soybean Milling	ADM, Cargill, Bunge, AGP	54	71	71	83
Cottonseed Milling	Anderson Clayton	45	43	62	
Malting	Conagra, Cargill, ADM, breweries	59	64	65	

Sources: 1977-92 concentration data from Census of Manufactures. Identities of leading firms, and 1997 concentration estimates, are from trade publications.

Table 3: Contracting Among Family Farms, 1997

Farm size category	Number of farms	Farms with contracts (%)	Total value of production ($ million)	Share of production covered by contract (%)
Small	574,908	16.4	55,222	20.9
Large	79,240	47.2	30,231	27.8
Very Large	45,804	62.9	59,583	44.3
All	699,952	22.9	145,036	32.0

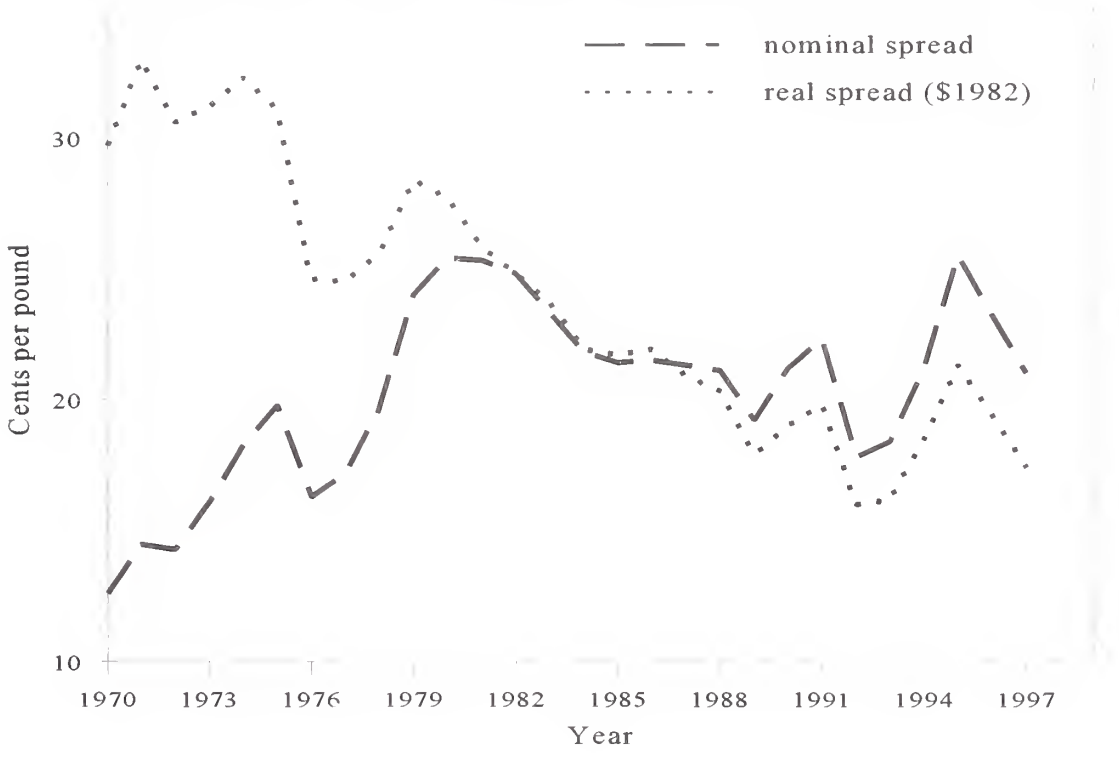
Source: 1997 USDA Agricultural Resource Management Survey. Definitions are based on ERS farm typology; table includes only family owned farms for whom farming is principal occupation.

Table 4: Biotechnology and Seed Industry Consolidation

A. Life science companies in seeds, and number of 1995-98 seed industry acquisitions		
U.S. Based: Dow Chemical (10), Dupont (5), Monsanto (22)		
Foreign-Based: Astra-Zeneca (7), Aventis (18), Novartis (6)		
B. Four firm concentration ratios, by crop		
Crop	Largest Companies	CR4
Corn	DuPont/Pioneer, Monsanto, Novartis, Dow	69
Soybeans[1]	Monsanto, Pioneer, Novartis, Dow	47
Wheat	Monsanto, Pioneer, Novartis, Dow	36
Cotton[2]	Monsanto	87

Sources: Unpublished ERS report, by John L. King and Kenneth S. Krupa
Notes: (1) About 25% of soybeans are farmer saved, not newly purchased. (2) Monsanto alone accounted for 87% of cotton seed sales, when combined with Delta & Pine Land.

Figure 1: Choice Beef Farm-Wholesale Price Spreads



Beyond Antitrust — The Case for Change

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University of Wisconsin Law School

My placement on the program is itself an indication of my approach to competition policy–I am an antitrust hawk. America's history shows that allowing highly concentrated markets to develop when such structures are avoidable imposes unnecessary costs on our society. The costs are social, political and economic.

In arguing for the Sherman Act, Senator Sherman warned of the danger of economic kings who could oppress America as much as the king of England had in the days before our revolution. Sherman recognized that the maintenance of our political democracy and open social system depended on retaining an unconcentrated, competitive market system in which no firm or group of firms could dominate.

In the first substantive decision interpreting the Sherman Act, Justice Peckham, no liberal or protectionist, wrote that the dynamics of markets can bring unavoidable hardships to particular classes of business. Such transformations are inevitable and must be endured. However, he condemned "combinations of capital whose purpose . . . is to control . . . production or manufacture . . . and . . . dictate price. . . ." In addition to the harm to consumers, he identified the harmful effect of "driv[ing] out of business . . .independent dealers . . ." He concluded:

> **"[I]t is not for the real prosperity of any country that such changes should occur which result in transferring an independent business man . . . into a mere servant or agent of a corporation. . . ; having no voice in shaping the business policy . . . and bound to obey orders issued by others."**[1]

I want to renew these warnings in the context of what is happening to agricultural markets today. Past failure to enforce antitrust law has resulted in increased concentration in both the markets supplying agriculture and in those that process and market its products. Moreover, subsequent, large scale vertical integration through both ownership and contract has impaired the working of transactional markets in agricultural goods. More and more, we see a handful of firms dominating a larger number of markets on both sides of the farmer and rancher. Further, those firms in turn are entering into "strategic alliances" with each other to make more secure their joint control over and allocation of markets. These changes encourage, indeed, may make inevitable, conduct that further weakens not only the viability of existing agricultural producers but also has a strongly negative impact on the dynamics of our economy as a whole. Fearing the strategic behavior of its rivals, each agricultural behemoth responds with actions that it believes will protect its position even though this imposes costs on producers and consumers. These 800 pound gorillas trash the agricultural economy to protect and entrench their present and future position in the market. The farmer and rancher increasing has "no voice in shaping the business policy" but is simply "bound to obey orders issued by others." Once independent farmers and ranchers are becoming the serfs of the 21st century.

These changes in structure and conduct may shift wealth between producers and others; they certainly impose enormous dislocation on agricultural producers; and they increasingly destroy the

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[1]U. S. v. Trans-Missouri Freight Ass'n., 166 U.S. 290, 323-324 (1897).

transparency of markets thus obscuring or hiding the underlying transactions. But they do not yield real economic gain in the short run and they impose avoidable economic costs in the long run. In addition, this transformation threatens core political and social values that have been at the foundations of this nation. To combine and alter Robert Frost and Mao's great dicta: There are many roads to capitalism, and we must take the most socially and economically desirable one.

The most fundamental proposition that I would advance is that no specific market structure is essential to achieve either economic efficiency or growth and change in the economy. There is a continuum of methods of organizing the production and distribution of goods that ranges from transactional markets to completely integrated single enterprises. Overtime, any particular form of legal market organization can adapt to the needs of technological efficiency. To be sure, at any point in time, some structures can respond more immediately while others will require creative use of legal systems and perhaps even revision of the law to achieve the same result. It is one of the greatest mistakes of the post-Marxist world of economics to assume that there is only one possible answer to optimal efficient organization of production.

On the other hand, some market structures enhance other values — independence and individual freedom of opportunity — while others impose greater regimentation and control over individuals. The later structures create greater risks to our political institutions and democratic social values. They also make innovation and dynamic change in economic behavior more difficult. Large economic institutions like dinosaurs of old are monolithic, bureaucratic and resistant to change. It is ironic that as the former Soviet Union desperately tries to undue its inefficient centralized agriculture America seems headed toward a new form of agricultural collectives.

The starting point of my analysis is that as a society we can make choices among potential structures. Moreover, such choices should consider the social, political, and dynamic implications of the alternatives. The least relevant consideration is productive efficiency because in time almost any system can achieve similar results.

The process of selection can be self conscious with a goal of advancing certain long run social, political or economic objectives. Or, as is often the case, it can an ad hoc response to the latest technological change based on current allocation of economic and legal powers. The second course creates a reactive trajectory that seems inevitable until one looks closely at the details. When thus observed, it is apparent that there were choices and options which could have led to the same long run efficiency but would have done so with different structures and consequences for those involved in the changing economic context.

The fact that there are many roads to efficiency is liberating for public policy. It means that decision makers need be much less concerned about long run adverse efficiency effects of their decisions. If something is truly efficient, the market will find a way to achieve that outcome. A decade ago I reviewed a number of the claims by scholars about the adverse effect of antitrust actions on the economy.[2] These cases were largely ones that had emphasized non-efficiency values. The historical record simply did not support the claim that those decisions had caused serious losses or other negative effects. Regrettably, I should also report that it is a little difficult to find strong evidence that antitrust interventions standing alone had had clearly positive effects on efficiency. More often than not, it was the interaction of antitrust, which had retained a more open and accessible market context, with changes in technology and/or other regulation that produced significant improvements.

Illustrative of the interactive process involving antitrust, technological change, and other regulatory innovation was the old meat packers oligopoly which the Justice Department challenged in

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[2]Peter C. Carstensen, How to Assess the Impact of Antitrust on the American Economy: Examining History or Theorizing, 74 Iowa L. Rev. 1175 (1989).

1920. The resulting limits on what the old line firms could do interacted with the advent of government grading of meat (a regulatory innovation that replaced private grading) and the development of refrigerated trucks. This combination made possible the rapid deconcentration of meat packing in the 1940s and 1950s. Slaughter houses no longer had to be located on rail lines. New entrants could establish that their product was as good as that of the established firms because it had the same government grades. The business was transformed. The old firms left the market and new ones entered. Sellers had real choices and thus greater autonomy.

Unfortunately, in the 1970s and 1980s the government failed to police the mergers among these firms. It mistakenly assumed that downstream markets would somehow police the upstream strategic buying conduct of regionally dominant firms. It ignored the lost choices that these combinations imposed on farmers and ranchers. Today, we again have highly concentrated markets on both a national and regional basis. The result is strategic buying behavior which harms farmers and ranchers, denies them a transparent transactional market place for their products, and may now require more direct regulation of buying practices. Indeed, I read that the meat packers want to return to private grades which would make new entry even more difficult.

Further undermining the vitality of the market system was the tolerance of mergers among grocery retailers which allowed greater and greater concentration of buying power in the hands of large enterprises. This created a symbiotic vertical relationship between retail oligopoly and the slaughter house oligopoly. The result is the increasing spread between the price paid the farmer the price charged the housewife.

In framing and enforcing a policy to retain and enhance individual autonomy and freedom of action, it is also important to recognize the broader implications of context. If large firms dominate a market sector, then it is irresponsible to look only at the specific points of competitive interaction without considering how to maintain effective overall competition in that sector. Illustrative of this error is the recent settlement of the Continental Grain merger. The government insisted on isolated divestitures where it identified specific overlaps between the merging firms. This ignored the overall operation of grain trading in which large integrated firms have come to dominate. By allowing the dismemberment of one of the leaders, the government has effectively reduced the number of real competitors in a significant way. This is a failure to consider the overall context because of blinders of a theory of competitive effect that ignores the larger and longer run implications of these combinations. There is no reason to believe that any increased efficiency will result from this merger. The government position is only that it did not see a significant present danger to narrowly defined competitive concerns arising from the combination less its divestitures. This is a bad decision because it reinforces the aggregate concentration of the market and thus entrenches the kind of oligopoly that will have resources to protect itself against equally efficient, socially more desirable alternatives. Moreover, by reducing in the long run the choices available to sellers, it will further limit the potential for autonomy and choice.

Unsupervised market structures are the result of historical accident far more than of rational economic decisions. The immediate actions of firms reflect strategic responses to opportunities and rivalries confronting those firms. The external legal context can magnify or diminish the impact of such actions. These include the legal structure governing market conduct including disclosure of prices and constraints on opportunistic actions; the rules defining the scope of intellectual property rights; and the rules governing upstream or downstream conduct in markets that directly effect agricultural markets–for example, slotting allowances paid to large grocery chains.

Thus, on the one hand we have many potential routes to the same efficient outcomes, but on the other hand we know that some routes create greater economic cost and impose worse social and political results. There is no reason for government to be indifferent about these choices. Yet today, those who enforce antitrust law are unwilling to recognize these historically important concerns. Moreover, wedded as they are to the indefensible idea that there are uniquely efficient market structures, they fear greatly the

"false negative"–blocking a merger or practice that in fact has no adverse competitive effect–because of the concern that this will deny the American consumer a more efficient marketplace that can not be achieved in any other way.

The trends in the markets supplying and buying from American agricultural producers are all negative in terms of both likely impact on the dynamics of our economy and on the other values that we desire in our economy for social and political reasons.

Horizontal concentration: Over the last two decades there has been a marked increase in the concentration of the various industries serving agriculture–from farm equipment to seeds and herbicides or pesticides. Similarly the markets into which farmers and ranchers sell have become more concentrated both at the immediate level of processors and marketers and at the ultimate level of retailing. The late Leonard Weiss in 1989 collected all the studies he could find concerning the comparative impact of concentration on price.[3] The overwhelmingly consistent outcome was that prices were higher in concentrated markets even though profits were not consistently higher. The implication of these results is that concentrated markets impose costs on consumers and suppliers who must sell into such markets, but such markets are not more efficient. The oligopolists waste enormous resources in striving to retain, protect and entrench their market positions. Thus, there is no social gain. There is only social cost.

The implications of increased concentration are particularly negative for farmers and ranchers because they lack the capacity to create effective counter power. An individual farmer or rancher is not well situated to bargain effectively with a single large customer. Only if they dealt in open, transactional markets with a number of competing buyers were farmers and ranchers in a position to approximate the fair market value of their product. The disparity in bargaining capacity–both power and information–means that reduction of real competitive options on either the supply or buying side of the market is far more devastating in this context than in others.

Concentrated markets also invite strategic rivalry. The patterns of contracting for supplies can be explained in terms of strategic behavior–rivals concerned that others might foreclose their supplies and seeking also to make new entry into their regional market more difficult because supplies are tied up. In a large, well-supplied transactional market, processors or slaughter houses would not need such contracts in order to be assured of adequate supplies. Even if special features were required–e.g., no genetic engineering or special feeding, such certification could, like other grading, be provided by third parties–public or private. The process of creating such new certification might be more time consuming, but it would produce the same level of information and do so in way that produces more favorable opportunities for entry and exit by individual processes or suppliers.

Sectoral concentration: Even a cursory review of the data on agricultural products or sales to agriculture shows that the same companies appear again and again. Thus DuPont provides insecticides and herbicides as well as providing Pioneer Hybrids. Monsanto is also a leading producer of seeds and crop protections. On the other side, Cargil, ADM, or ConAgra appear again and again among the leading firms in various kinds of food processing and distribution. Several implications follow from this kind of sector dominance as well as cross linkages among supply and processing markets. The first is that such firms have the potential to deal in multiple ways with their customers. Monsanto has employed contracts to limit the use of herbicides on the soy beans it sells to its particular brand. Thus, such a firm has an incentive to distort and restrict competition in order to further its owns economic interest.

In addition, the potential exists for linked oligopoly. Firms recognize each others' "sphere of influence" and refuse to enter or compete vigorously in each others' dominant area. This has proven to

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[3]Lenord Weiss, ed., Concentration and Price (1989); see also Peter C. Carstensen, While Antitrust Was Out to Lunch: Lessons from the 1980s for the Next Century of Enforcement, 48 SMU L. Rev. 1881 (1995).

be a noticeable consequence of interstate bank mergers.[4] It seems increasingly likely in the area of agriculture. Further, limiting the number of firms in any sector reduces the incentive to engage in dramatic innovations in technology or marketing. The firms have a shared interest in stability within their sector. They can define and limit the scope of their competition with less risk that someone will come up with a new way to do things. This kind of concentration therefore chokes off the scope of innovation and competition among potential alternatives.

Vertical integration: Increasingly producers have integrated backward into the production of agricultural commodities. The pending merger between Smithfield and Murphy Farms that will consolidate the largest pork processor with the dominant pig raiser illustrates the kind of combinations that are occurring across a large number of fields. Such integration will not produce efficiency gains. It will raise barrier to entry into both processing and raising hogs. As such integration increases, the transactional market will be marginalized. Independents will face greater obstacles in marketing their hogs and lower prices. The spot market will become the place in which the packer seeks only the extra supplies when there is unexpected demand. This is likely to result in a higher cost on average for the processor, but the gain will be in controlling more fully the market context–less risk of new entry, less risk of direct competition for supplies and thus more apparent predictability for the market process. On the retail end, the large chain buyer is as interested in being assured that its price is as favorable as its competitors price. Thus, the inefficiency of the system can be passed on to the final consumer.

Conduct consequences: the combination of these structural changes in turn make possible new kinds of conduct that are rational self-protection by such firms. These actions achieve both protection and entrenchment of their positions in the market. They produce no gains for consumers or farmers and ranchers. Indeed, this conduct is likely to harm the long run best interests of both classes.

Strategic alliances: Non-merger collaborations among large firms allow them to coordinate their competition in order to create mutual power. The intended effect is to obtain a stronger market position. A few of these alliances might provide economically useful coordination if they create an efficiency enhancing joint venture to produce or distribute new products. Such joint ventures also show that merger is not an essential element to effective entry into new lines of business. Other alliances, to the extent that we have any reliable information, are merely a mechanism to coordinate efforts among firms to limit their direct competition and ensure mutual strategies to build market power.

It should be a source of real concern that we know so little about the scope and content of these alliances. The parties, except as required by law, do not make public disclosure of their agreements or how they are implementing them. Given the high levels of concentration both within markets and industry sectors as well as the growing vertical integration in these industries, such disclosure is essential to proper evaluation of these relationships.

Vertical contracts: The growth of contracts between processors and producers in a variety of agricultural commodities has produced an additional set of harms. These contracts have arguable utility by providing the producer with greater assurance of sale at a known price and by assuring the buyer that particular products will be available when desired. However, these contracts often have substantial non-efficiency motivation as I have discussed. In particular, if a producer can tie up a substantial segment of the existing supply under contract, it will be much more difficult for a new entrant to open up in the area because of the limited supply available. If a substantial segment of supply is controlled, it will destroy a workable transactional market; thus forcing the remaining producers to scramble to seek similar contracts. In the end, such rivalry can destroy the more efficient and flexible means of linking producers to processors. The choices are not efficiency driven but the consequence of the rivalry that occurs in

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[4]Gary W. Whalen, Nonlocal Concentration, Multimarket Linkages, and Interstate Banking, 41 Antitrust Bulletin 365 (1996).

concentrated markets.

Slotting and other special deals at retail: Recent congressional hearings have focused on the emergence of slotting payments as yet another device that creates problems throughout the agricultural marketing system. Large food processors pay large retail chains for the privilege of having their products displayed favorably. Such transactions occur because there are large producers with multiple lines of goods dealing with very large retail chains. Buying a favorable location in a single store for a single product of small firm does not produce either foreclosure or likely gain. In such a situation, the store owner will decide based on his or her own judgment what to place on the shelf and the producer will compete on price and quality. When a large producer can deal with a handful of chains so that it gets a favored position, this enriches the chain and protects the large producer from the threat of competition that arises from consumer choice. Again, this problem exists because of the concentrated markets in retailing and production.

Intellectual property abuse: Increasingly, suppliers of seeds and other inputs to agriculture are trying to control the production and resale of the resulting crops and animals along with specifying the methods and products to be used in connection with raising these items. Here the problem is an expansive definition of the legal rights that patents and other intellectual property confer on their "owners." When a soy bean developer wants to control the herbicide or pesticide used with the beans its customer plants, we see the kind of distortion that such rights create. We have new technology in plants and animals protected by legal systems developed in another time to define rights in different contexts. These rights confer vast opportunities to exploit the user. This is true across the board in areas of high technology. By licensing rather than selling the idea, the owner can exercise comprehensive control over the scope and nature of the use made. In the concentrated markets of agriculture with the broad range of activities controlled by a single firm, these rights encourage a expansive and abusive exploitation of the user. Indeed, once one firm starts down this path, its rivals are forced to follow because otherwise, they risk losing out in the race to survive. Thus, badly defined rights and concentrated markets induce the maximum in exploitation.

In sum, the present structure and conduct of the markets supplying agriculture and buying its products impose substantial but avoidable costs on farmers and ranchers as well as consumers. Moreover, the gain in terms of innovation or efficiency are not uniquely associated with the present system. Indeed, it seems likely that the country would gain on both counts from a different system that reduced concentration and opened up alternative routes. Finally, the cost of this transformation is not only economic. It makes the farmer or rancher, in the words of Justice Peckham, "into a mere servant or agent of a corporation."

Modern antitrust, however, operates from an unrealistic and narrow vision of isolated markets and an even more constrained conception of the harms that may be considered in deciding whether a merger or restrictive agreement should be challenged. The result is an antitrust law that fails to take into account real harms because they are not included in its theoretical calculus. Antitrust enforcers acquiesce in the destruction of competition and the market framework within which independent businesses can transact because their models do not allow them to see the reality of what is happening. Moreover, its implicit economic determinism leads antitrust to be unduly solicitous of any claimed efficiency gain even as it ignores the social and political costs that will result from its failure to act. Finally, antitrust assumes that the primary or only relevant context in which to appraise a merger or other combination is a narrowly defined product and geographic market. Even if the merging firms operate in many markets and bring a capacity based on that size and diversity, the antitrust enforcer will only object to the narrow overlap. If that is resolved the firms can combine. The loss to overall competition is however understated. Divesting certain specific assets that related to certain limited geographic areas do not and cannot restore the overall market place with a major player in the market which would be capable of competing effectively.

Antitrust today, therefore, rests on some key myths:

1. A high level of direct, narrowly defined market concentration is the primary source of competitive problems. Hence, there need be little or no concern for concentration in larger sectors, vertical relationships, or the impact on future competitive potential. This justifies narrowly framed settlements focused on particular assets rather than blocking entire transactions.
2. Large size is a sign of efficiency. How else could a firm become big the economic determinist reasons. If size is efficient, then antitrust must intervene sparingly in combinations and must accept high concentration because it is essential to efficiency. This is at the core of a minimalist policy on merger and monopoly.
3. Contractual relationships have only or primarily an efficiency objective. If one assumes workably competitive markets in which firms are not engaged in strategic behavior to protect and entrench their positions, then the logical explanation for any contract, except a naked restraint on competition among competitors, is that it must serve some legitimate interest in efficiency. This account of restraints ignores the incentives and relational power of large oligopolistic firms operating in multiple markets with substantial market shares.

This leads to the question of what can be done to change the trajectory of our legal regulatory system?

One option currently under discussion is new legislation that would explicitly address agricultural concerns and empower the Secretary of Agriculture to act to protect the workability of those markets against massive structural change and unfair contracting practices. Another option is to return to the historic standards of antitrust law and enforce those standards with vigor. While the second option is less viable in today's judicial climate, I emphasize it because it underscores that the point that today's law enforcers have abandoned the hard-earned learning of many decades of antitrust experience and substituted abstract theories based on unrealistic or irrelevant assumptions. I turn first to the antitrust options.

Antitrust law starting with Justice Peckham's decision has had a strong strand of skepticism about the inherent necessity for particular market structures or conduct when adverse effects are possible. In cases stretching over many decades judges have articulated the understanding that antitrust law reflects a choice on the part of this nation to have open, competitive markets. This traditional view insisted that firms can find ways to organize production within the constraints of strict antitrust and achieve efficiency and dynamic growth without unnecessarily sacrificing the well-being of independent dealers.

It is not too late to return to that earlier learning. Its implications would be a tougher policy on mergers–vertical, horizontal and conglomerate. Absent a clear showing that merger, alone of all mechanisms, is the essential element to a clear and demonstrable gain to efficiency, mergers creating measurable increases in horizontal concentration should be stopped. Similarly, when a merger increases significantly concentration within a sector of the market or contributes substantially to the proportion of a market that is vertically integrated, antitrust law could just say no. Preserving the entire enterprise will ensure that the full dynamic implications of its presence in all its markets and sectors will be retained. Finally, antitrust should return to its historic concern with the ways in which contracts restrain the freedom of action of suppliers or dealers. If the goal of economic independence is taken seriously, such contracts are objectionable unless they provide a truly important contribution to efficiency that can not otherwise be achieved.

Such an agenda for antitrust is, I confess, unlikely to occur. The judiciary has written the narrow conceptions into the case law. Those charged with enforcement have, too often, become the apologists for concentration and the justifiers of restrictive contracts. It would take a major culture change to restore a pro-active enforcement agenda today and it would probably fare badly in court.

I should note that at the margin some progress is occurring. The FTC has recently blocked Ahold's acquisition of Pathmark thus retaining some better competition in the grocery business. The

FTC also insisted that the divestiture of gas stations by Exxon and Mobil in the northeast go to a single buyer so that the resulting entity would have a greater potential to be an effective competitive force. The Antitrust Division in the Continental Grain merger did at least acknowledge that adverse effects on suppliers are legitimate antitrust concerns in addition to adverse effect on consumers. Moreover, it has in some mergers in high technology and telecommunications recognized that both vertical and conglomerate dimensions of the transactions raised competitive concerns and required remedy. Much more would need to be done before the current enforcement of antitrust law could be regarded as a primary means to protect the existing structure of American agriculture from unnecessary disruption and potential destruction.

The alternative then is to adopt legislation directly creating a new legal standard for protecting the interests of farmers and ranchers. The Secretary of Agriculture has the responsibility today to advance the best interests of American agriculture. However, the Secretary lacks the legal tools to carry out this mandate in the context of the current market situation.

Legislation is necessary and is under discussion. The current legislative focus is on two objectives. First, creating an additional mechanism for the review of mergers. Second, expanding the authority of the secretary to regulate the terms and conditions of market and contract relationships between buyers of commodities and the farmer or rancher who produces it.

In the merger area, the fundamental idea would be to authorize a review of proposed mergers explicitly based on their likely impact on farmers and ranchers. When a merger or an element of it had or was likely to have an adverse impact, that would be a basis to deny the merger or require that it be revised to avoid the problem. The standards for determining this impact are not easily articulated. Moreover, there is a significant question of how to balance a claim of economic efficiency resulting from a merger against the potential harm to farmers. In the area of banking, a similar test exists to justify anticompetitive mergers. There, the historical record suggests that no anticompetitive merger has ever been justified by the potential gains to other goals. In the case of agriculture, given that there are almost always other ways to accomplish legitimate efficiency enhancing objectives, I would anticipate that a finding of adverse effect on farmers and ranchers, if sustained on the record, would almost always outweigh any purported efficiency claim.

More troubling, the current proposals focus only on the marketing side of agriculture. That is they would build on existing legislation on meat packing and grain marketing to expand the Secretary's authority to include review of mergers. There would be no authority to examine supply side transactions involving seed and herbicide producers or equipment manufacturers. Similarly, there would be no authority to intervene in mergers further downstream–for example in the grocery retailing sector of the market. The limit of the proposed authority, while consistent with the scope of existing authority, would mean that the Secretary would be powerless to protect farmers and ranchers against adverse consequences of such mergers.

The other dimension of this proposal would expand the authority of the Secretary to regulate terms of trade governing the initial transfer of agricultural products from farm or ranch to processor. The growth of longer term requirements contracts, the reduction in direct market transactions, and the use of other contracting terms having strategic implications, create a clear need for a better set of rules to govern this area of the market. This need is even more compelling given the high levels of concentration in the buying markets and the fact that such concentration is very unlikely to decline in the short run.

All contracting takes place within the framework that the law allows. The central question is the structure of the legal system that defines the options available to the parties. In the context of agriculture, the growth in concentration on the buyers side and their new strategic interests has not been offset by increased capacity on the part of individual farmers to respond effectively to the new context. Only government regulation can preserve a workable market context. It can do so by defining the kinds of information and terms that are permissible and insisting on public disclosure of important information

to ensure that both sides of these transactions have reasonable access to knowledge. A recent decision in a federal court of appeals further supports the need to revisit the framework of regulation to ensure that it provides an appropriate context for both transactions and contracting.

The draft legislation building as it does on the traditional authority of the Secretary focuses on the marketing of agricultural products and does not address the equally worrisome supply side of the market. As discussed previously, it is important to review and evaluate the merits of the new contracts that seed producers and others are using to control choices of their customers. Such restrictions may well prove as harmful to the autonomy of farmers and ranchers as the restrictions on the buying side.

At a more fundamental level, it would be very desirable to reconsider the scope of rights conferred under patent and other intellectual property regimes. In the modern world of large enterprises acting in very strategic ways, such rights can create an infinite number of toll booths along the route of production. The impact will be to increase costs, fracture markets, deter innovation, and ultimately undermine the capacity of our economy to grow through the use of high technology. At the same time, an appropriate system for rewarding innovation is essential as an inducement to developing new products and technologies. The need for a better balance transcends agriculture and extends throughout the entire economy. It is a need that neither antitrust law nor the Secretary of Agriculture is well situated to address. I reference it here to emphasize the extent to which the issues affecting agriculture also affect the broader economy. It is another reason why I would prefer to see more global solutions to the problems made manifest in agriculture.

In sum, neither the proposed legislation nor current antitrust can provide a comprehensive solution to the kinds of problems that confront agriculture today. Past laxness in enforcing antitrust law combined with a range of economic and legal forces have created the present market context in which the oligopolies in supply markets and the oligopolies in the markets buying farm products have combined to impose enormous stress on traditional agriculture. It is time, indeed, long past time, that the law must attempt to rebalance the system. A more active antitrust enforcement program is part of that rebalancing, but it will take a good deal more to ensure the survival of the socially, politically, and economically desirable structure of American farming and ranching.